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DETROIT

WILLIAM A. SLATER

Election to Vice Presidency Rewards
32 Years of Service With Gulf

# ATIONAL PETROLEUM NEWS

JUNE 14, 1939

# When buying new pumps- THINK FIRST OF THE LAST COST!

THERE is very little, if any difference in the original cost of gasoline pumps. But there may be a whale of a difference in the last cost. The costs of operation, maintenance and depreciation seem unimportant at time of purchase, but may develop into major expenses as years go by. Tokheim pumps have always been famed for their economy of operation and maintenance. This year, due to recent improvements, this economy reaches a new high in Tokheim history. Tokheim pumps are beautiful, quiet, and dependable too. Choose them when you buy. Write now for folder.

*Illustrated is Model 39 Computer. Also available in Clock Dial and Stationliter types.*

QUALITY TOKHEIM
COMPARE THE VALUE

**THE PUMP THAT COUNTS**

**Counts Dollars and Cents**

**Counts Gallons and Fractions**

**COUNTS MOST IN PROFITS AND UPKEEP SAVINGS**

TOKHEIM OIL TANK & PUMP CO.

DESIGNERS AND BUILDERS OF SUPERIOR EQUIPMENT

FORT WAYNE FOR 38 YEARS INDIANA

# Now! a completely streamlined Pump—

BOWSER
ESTABLISHED 1885

# Reel Way
## HOSE CONCEALED

## THE MODERN ANSWER TO THE LONG HOSE PROBLEM

To a long list of "Firsts" . . . including the first truly distinctive streamlined pump, Bowser leads with another: The REELWAY—the first completely streamlined pump!

With REEL WAY there's no bagging or dragging hose . . . no kinks. Pull out only the amount of hose needed—up to fourteen feet (if you want it). When you're through, the self-winding reel retrieves the hose, automatically.

For permanent neatness and long hose "reachability" . . . for dependability and hose saving economy . . "dress up" with REEL WAY—the newest, most practical idea in pumps.

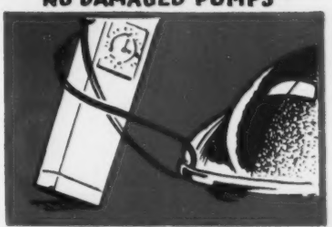
Get complete details NOW!

**S.F. BOWSER & CO., Inc.**
1334 Creighton Ave.
FORT WAYNE, INDIANA

BOWSER ALSO BUILDS
A Complete Line
of Outstanding
. . . COMPUTING PUMPS
. . . NON-COMPUTING PUMPS
. . . PRINTING PUMPS

NO UNNECESSARY HOSE WEAR

NO DAMAGED PUMPS



NO ACCIDENTS

NO UNSIGHTLY APPEARANCE

Another Bowser First!

BOWSER
ESTABLISHED 1885

## TODAY'S BIGGEST BUY IN PUMPS

## J. H. Parker

● "Nothing to do" after the World War, in the words of J. H. Parker, of New Bern, N. C., prompted him to build the first drive-in station in his city. He served in the War as a Navy ensign. Now, Mr. Parker is president of the newly-reorganized North Carolina Oil Jobbers Ass'n.

During the post-war period Mr. Parker built several more stations, then became a commission agent for one of the major companies. In 1930, he organized Coastal Petroleum Co. at New Bern. (Mr. Parker's company was the first Shell distributor in North Carolina and he is handling Shell Oil Co., Inc., products today.)

His company has four marine terminals, served by its own tankship, "The Colony", hauling out of Wilmington, N. C. Seven trucks serve a number of company-operated stations and 60 dealers, besides many commercial and farm accounts in five counties.

Mr. Parker is devoting much of his time and efforts nowadays to welding the state association into a strong, workable organization, with as near 100 per cent membership among North Carolina jobbers as possible. A statewide meeting of North Carolina jobbers is being held June 14 at Raleigh to complete the association's program for helping the jobber and improving marketing conditions in the state.

National Petroleum News

VOLUME 31 WEDNESDAY, JUNE 14, 1939 NUMBER 24

# Sinclair Advances Gasoline Prices in 42 States

## Court Enjoins Oil Law Order In East Texas

*By Teletype*

AUSTIN, Tex., June 12. — A body blow was given here today by a Federal Court decision to the plan the Texas Railroad Commission has used since April, 1933 for prorating production of crude oil in the East Texas field. Texas Commission officials indicated that the decision would be appealed.

The decision was in the suit in which Rowan & Nichols Oil Co. attacked the proration order of Aug. 29, 1938 which fixed the allowable production of the field at 2.32 per cent the hourly potential production of wells and did not take into consideration acreage or other factors. (NPN, Sept. 14, 1938, page 10).

Federal Judge McMillan held that the order was "confiscatory" as applied to certain properties of the oil company and enjoined the Railroad Commission from enforcing it. At the same time the Judge offered some criticism of the manner in which the Commission had granted exceptions to its own well-spacing order (Rule 37).

Judge McMillan made it plain that the court was not attempting to pass on the validity of the Texas Conservation Law or statewide proration orders issued under that law. He added that the company was not being turned loose to produce without restraint but a proper amount of production would be decided upon at a conference among attorneys.

Since the decision undoubtedly will drag out into the open, the question of well spacing, acreage, drainage and other factors as being necessary for consideration in drafting a proration order, it probably is the most important one pertaining to East Texas proration since the April, 1933 order of the Commission was upheld by federal court. That order embodied the new method adopted by the commission of giving each well a potential rating and replaced the former "flat allowable" plan under which every well in the field was given the same daily quota.

The company, in asking the court for an injunction against the Commission, had contended the order of Aug. 29, 1938, was "unfair" because it was based solely on well potentials, whereas acreage, porosity and permeability of the oil sand also should be considered.

Judge McMillan in his opin-

(*Continued on page* 19)

### FTC Oil Code Will Be Out In Two Weeks—Brown

DALLAS, Tex., June 9. — A modified set of fair trade practice rules will be presented to the oil industry for consideration within the next two weeks by the Federal Trade Commission, according to Russell B. Brown, general counsel of the Independent Petroleum Ass'n. of America, reporting to the membership on results of the I.P.A.A.'s efforts to revive the voluntary oil marketing code at the FTC.

## Half-Cent Advance is Set for June 14, National Refining and Coryell Follow

N. P. N. News Bureau

CLEVELAND, June 13.—The oil industry throughout the United States today anxiously awaited reaction to the announcement by Sinclair Refining Co. last week that it would advance its gasoline prices half-cent a gallon in 42 states, effective Wednesday, June 14.

Today National Refining Co. announced that it, too, will advance its gasoline prices, normal and subnormal, by 0.5 cent, effective June 14, in the 20 states in which it operates.

Significant, also, was the announcement from Lincoln, Nebr., that L. L. Coryell & Son, Inc., leading price-selling marketer in the Middle West, would advance its tank wagon gasoline prices to dealers and its retail prices at company-operated service stations by 0.5 cent, effective June 14.

Coryell operates in 14 states, from Denver to Cincinnati, from Minneapolis to Memphis. It has over 500 retail outlets, of which about half are company operated.

While officials of other marketing companies expressed interest in the Sinclair announcement—many stating that it was a "step in the right direction"—they were not yet ready to say what action their companies would take. Most of them indicated that they thought the price advance was "justified" but it appeared that they were waiting to see what their competitors would do.

One large refining company, operating in the Middle West, said it would advance its gasoline prices regionally as soon as it could test out conditions this week.

So far, none of the so-called market leaders (companies which have the largest gallonages in various territories) has indicated what action it will take as a result of the Sinclair advance.

Chicago division office of Sinclair stated that the 0.5-cent price advance, announced for June 14, was in addition to advances in the last week or two made by Sinclair in Indiana, Illinois, Wisconsin, Michigan and Ohio following similar advances by the Indiana Standard and the Ohio Standard, respectively, toward "normal." It was believed that this held true for other states in which Sinclair had made advances recently.

Interest in the Sinclair announcement was not confined to the marketing branch — many

## Indiana Standard Will Not Buy or Sell Pumps When Dealer Switches Suppliers

N. P. N. News Bureau

CHICAGO, June 12. — Standard Oil Co. of Indiana has adopted a policy on the handling of equipment at a dealer service station, when the company acquires or loses an account, in which aboveground equipment will not be sold or purchased and establishing a price schedule on the exchange of underground tanks, piping and fittings.

Under this policy, apparently, the Indiana Standard, when it loses a dealer account will pull out its gasoline pumps instead of selling them to the incoming supplier. Conversely, when the Indiana company gains a new dealer account, it will not purchase the already-installed pumps from the outgoing supplier. Same policy applies to other aboveground equipment, but not to underground equipment.

Following is the schedule in the Indiana Standard's policy effective June 1, for buying or selling underground equipment:

| Tank capacity, gallons | Price |
|---|---|
| 280 | $35 |
| 550 | 50 |
| 1000 | 75 |
| 2000 | 100 |

The policy was adopted, it is understood, to stop the purchasing of obsolete equipment in taking over a dealer account, and to enable the company to keep standard equipment that could be used at other locations.

Price schedule put into effect by the Indiana Standard is for galvanized or black steel tanks of any specifications. The capacities are subject to a 10 per cent variation below or above that set up in the schedule, and on odd-sized tanks not included in the schedule the price will come within the next lowest or highest size.

In cases of unusual installations, involving much concrete work or other additional construction features, the price for buying or selling underground equipment is to be determined by a joint appraisal.

crude oil producers interpreted it as a bold attempt to "save" the Mid-Continent crude price structure.

The Sinclair announcement, issued June 8 by H. F. Sinclair, board chairman of Consolidated Oil Corp. (parent company of Sinclair Refining), came on the heels of a cut in Illinois crude (due, it was emphasized, to "local conditions" in Illinois). Mr. Sinclair several times in recent weeks had stated that product-prices had to advance for the refiner-marketer or else the price of crude would have to come down (and Sinclair evidently meant Mid-Continent crude, as his company is not in Illinois).

In connection with the price advance announcement, Mr. Sinclair issued the following statement:

"This increase is a step toward the correction of a situation that has been getting steadily worse for a long time. In the past 18 months the gross revenue from a barrel of crude oil has declined more than 50 cents. This situation prompted me three weeks ago to say that the price of products must go up or the price of raw material must go down. Better product prices should help to avoid a reduction in the price of crude oil, which would bring about a downward cycle imposing increased hardship upon oil producers in particular, but ultimately on everybody.

"It must be obvious that the industry cannot continue to operate on a product price level which does not permit the refiner-marketer to meet his costs and recover what he pays for his raw material.

"I have said before, and I want to repeat, that I believe the public is willing to pay a price for petroleum products that will enable the industry to meet the heavy demands upon it and continue to supply the consumer with the best fuels and lubricants at reasonable cost."

The only states in which Sinclair Refining does not operate are: Arizona, California, Montana, Nevada, Oregon and Washington.

On Monday, June 12, a two-column advertisement by Sinclair Refining announcing the 0.5-cent price advance was inserted in 48 newspapers, in principal cities from New York to Florida, and west as far as Denver.

"We believe," said the Sinclair advertisement (full text of which is printed in adjoining column on this page), "the public is willing to pay a fair price for gasoline and other petroleum products in order that the industry may continue to employ the 1,000,000 people on its payrolls, pay a fair return on the capital invested in the industry, carry a tax burden of more than $1,250,000,000 annually, and supply the consumer with the best fuels and lubricants at reasonable prices."

First of the larger companies to indicate that it would meet the Sinclair advance was National Refining Co. which in a public announcement on June 13 by Paul Ryan, president, said National would advance "its normal and sub-normal tank-wagon prices 0.5 cent per gallon on all grades of gasoline, both to dealers and consumers, throughout the 20 states in which it operates, effective Wednesday, June 14."

**National Refining's Statement**

"Recent studies have shown that an effort should be made to provide a proper margin of profit for the refiners of petroleum products. Toward that end we will raise tank wagon prices ½c per gallon throughout our entire marketing territory," said Paul Ryan, president of the National Refining Co., in a statement announcing the advance.

"In spite of the steady increase in taxes and operating costs, the prices which the public pays for petroleum products today are definitely much lower than the prices paid for inferior products some years ago; all other commodities have advanced in price, but not petroleum products. Increasing costs and taxes have, to a large extent, absorbed profits.

"Unless the prices of refined products are increased, the only alternative is a reduction in the price which refining companies pay for their crude oil. This reduction would work a serious hardship on the hundreds of thousands of small business men who depend for their livelihood on the production of petroleum.

"The consuming public is vitally interested in maintaining and receiving high-quality products and good service. The public has repeatedly proven its fairness in supporting a reasonable price that will assure continued improvement in such products and services and will tend to decrease the marketing losses now prevalent at the present price levels," Mr. Ryan concluded.


Effective Wednesday morning, June 14

SINCLAIR

**will increase its prices for tank-wagon deliveries of all grades of gasoline ½¢ per gallon throughout the 42 states in which it operates.**

The industry will not be on a sound basis until it receives an adequate return for its products.

The industry cannot continue to operate on a product-price level which does not permit the refiner-marketer to meet his costs and recover what he pays for his raw material—crude oil.

We believe the public is willing to pay a fair price for gasoline and other petroleum products in order that the industry may continue to employ the 1,000,000 people on its payrolls, pay a fair return on the capital invested in the industry, carry a tax burden of more than $1,250,000,000 annually, and supply the consumer with the best fuels and lubricants at reasonable prices.

SINCLAIR H-C GASOLINE

SINCLAIR REFINING COMPANY (INC.)

NEW YORK · CHICAGO · KANSAS CITY · FORT WORTH · ATLANTA


**This advertisement, two-columns in length, was inserted in 48 newspapers June 12 by Sinclair Refining Co. to tell the public why Sinclair was advancing its gasoline prices in 42 states, effective June 14.**

## Wisconsin Law Hits Reselling Consumers

MADISON, Wis., June 12.—The practice of employes buying general merchandise at their places of employment to obtain a better price than in retail stores is being stopped in Wisconsin as Gov. Julius P. Heil recently signed Senate bill 241.

Wisconsin's law prohibits an employer selling to employes unless the merchandise is manufactured by the employer or used in the regular course of the employer's business, except that employers may sell meals, candy and tobacco, and merchandise applicable to the safety of or necessary to the employe's work. Employers also may purchase fuel for employes, if the payments are deducted from the employe's pay. Co-operatives, and lumber companies and dealers are exempt from the law.

Under this law employes no longer can get the employer's purchasing department to buy motor oil or other merchandise for them "at a discount," and if oil companies have been using their rights to buy at wholesale for employes this practice will be illegal.

# 'Hot' Oil Bill Comes to Vote Soon in House

N. P. N. News Bureau

WASHINGTON, June 12.—House action is expected this week on the bill (S. 1302) to extend the Connally "Hot" Oil law. House Interstate Commerce Committee has reported the measure, recommending a three-year extension of the law instead of making it permanent, as voted in the Senate.

If not extended, the "hot" oil law will expire June 30.

As reported by the House Committee, Section 2, providing for specific extension of the criminal provisions of the original Connally Act, was stricken from the bill as unnecessary. The committee pointed out that the decision of the U. S. Supreme Court in *U. S. v. Powers & Allred* (N.P.N. May 17, p. 17) obviated the need, if any existed theretofore, for such a provision.

In referring to the Supreme Court Decision in this case, Rep. William Cole, Md., chairman of the subcommittee which held hearings on the bill, pointed out in the report that the high court had described the Connally law as one "designed to protect interstate and foreign commerce from the diversion and obstruction of, and the burden and harmful effect upon, such commerce caused by contraband oil (as defined in the act) and to encourage the conservation of deposits of crude oil within the United States."

"This quotation," Cole said in the report, ". . . is given because the committee believes all familiar with this subject are in agreement that the primary purpose of the Connally Act is to encourage conservation of our crude-oil deposits. This is in direct contradiction of the testimony heard by your committee from those appearing in opposition to this bill. In fact, with that part of the opposition testimony eliminated, that is, their statements that the Connally law is not a conservation measure, very little is left.

"Every due consideration was given to the few witnesses appearing against this legislation and everyone asking to be heard was given an opportunity either to testify or insert a statement in the record. Without meaning to reflect upon the sincerity of those making up the opposition, it is felt that no constructive reasons for the discontinuance of this act have been advanced."

Explaining the committee's refusal to make the law permanent, as proposed by Sen. Connally (Tex.), and as passed by the Senate, the report says "it is felt that until the principal oil-producing states show a willingness to enact permanent conservation statutes, such as the enforcement of this legislation contemplates, Congress should continue co-operation on behalf of the federal government on a temporary basis only."

# Labor Board Hearing In Tulsa Oil Strike Lists 600 Witnesses

N. P. N. News Bureau

TULSA, June 12.—The hearing by the National Labor Relations Board of charges filed by striking oil workers' union members against the Mid-Continent Petroleum Corp. has dropped into a routine pattern featured by arguments by council over procedure methods.

With about 300 witnesses reported on the list of each side, less than 25 had been heard when the hearing was recessed for the weekend. Unless there are some unexpected agreements leading to stipulations the hearing is expected to last another three months.

Many of the arguments arise over complaint of counsel for the corporation that it is being denied the right of cross-examination of witnesses.

Several alleged leaders of the union when the strike was called last Dec. 22 have lost, meanwhile, their fight to escape trial on charges of directing a riot. Pleas Judge Grady Cornet overruled demurrers filed on behalf of the 16 men indicted and three hours later they pleaded not guilty to the charge and were held for district court trial June 19.

The county attorney has obtained dismissal of the conspiracy charges against the 16 defendants and has filed a charge of riot which, he said, contained the same evidence as the conspiracy charge but carried a heavier penalty upon conviction.

### Wisconsin Bond Bill Signed

MADISON, Wis., June 10. — Gov. Julius P. Heil this week signed the Wisconsin gasoline tax bond bill. Bonds now will be equal to the highest monthly gasoline tax payment, against the previous law that required twice the amount of the monthly payments.

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# NPN's Log ON OIL LEGISLATION

**Summarized oil legislative information below is based on reports received at Cleveland from Washington and state legislatures, which are deemed reliable although NATIONAL PETROLEUM NEWS assumes no responsibility for accuracy or completeness of this information**

## Final Reports

### Maryland

**(Legislature convened Jan. 4, adjourned April 3)**

#### Bills Enacted

*HB*-139. Substitutes an "Unfair Practices" type act for a "Fair Trade" act. Approved.

*HB*-276. Relating to the operation, maintenance, equipment and inspection of boilers. Approved.

*HB*-439. Provides that the Commissioner of Motor Vehicles shall furnish locks with every set of registration plates. Approved.

*HB*-836. Increases license fee for garages containing not more than 1600 square feet from $5 to $15. Approved.

*SB*-379. Makes permanent the present distribution of the 1.5 cent Lateral Road Gasoline Tax which would have expired on September 30, 1939. Approved.

*SB*-437. Authorizes comptroller to release for expenditure by State Roads Commission any excess of receipts from 1.5 cents Lateral, County and Municipal Road Gasoline Tax Fund over and above anticipated receipts from tax as set forth in budget for 1937 and 1938. Approved.

*SB*-18. Increases speed limits on dual-lane highways. Approved.

*SB*-80. Permits the town of Elkton to regulate advertising. Approved.

#### Bills Which Did Not Pass

*HB*-631. To impose a tax of 1 cent per gallon on kerosine and crude oil sold and used in state.

*HB*-805. To authorize comptroller to inspect and test any gasoline, motor fuel, kerosine, oil or other liquid fuels, or lubricating oils, or similar products, for purpose of preventing adulteration, deception or fraud in sale thereof.

*HB*-411. To require that octane content of motor fuel shall be indicated by a sign prominently displayed on outside of premises where said motor fuel is sold.

*HB*-673. To require signs to be placed on dispensing apparatus stating actual total price, including taxes, per gallon of all motor vehicle fuel sold.

*HB*-326. To specifically include service stations in Maryland chain store tax law.

*HB*-362. To impose a tax of 2 per cent of selling price upon each retail sale in Alleghany County. Sales of gasoline are exempt.

*HB*-588. To impose a tax of 2 per cent of price on every retail sale. Sales of gasoline taxable under motor vehicle fuel tax law are exempt.

*HB*-310. To provide for the recodification of the law relating to motor vehicles.

*HB*-528. To require the Commissioner of Motor Vehicles to supply each registration applicant with two license plate locks at 50 cents.

*HB*-694. To authorize the State Road Commission to borrow $7,000,000 to build a dual highway from Washington, D. C., to the Pennsylvania state line. Loan would be paid out of gasoline tax and motor vehicle license revenues.

*HB*-748. To require every motor vehicle to have attached to the rear a red reflector not less than 3 nor more than 5 inches in diameter.

*HB*-755. To authorize County Commissioners to borrow $1,000,000 for purpose of constructing additional county dirt roads. Loan would be paid out of the county's share of the gasoline tax revenues.

*HB*-314. To extend the Fair Trade Act to cover commodities sold from vending equipment which bear the trade-mark, brand or name of the producer, etc., does not apply to sale or resale of fuel oil.

*HB*-617. To provide for a license fee of $15 on "Roadside Stands."

*HB*-684. To require manufacturers selling their products at retail to take out a traders' license.

*SB*-164. To require motor vehicles to be equipped with a device showing by arrow or other symbol whether vehicle is going to turn to right or to left.

*SB*-84. Outdoor advertising. Allows two signs per station, each sign not exceeding 32 square feet advertising goods sold on the premises.

*SB*-225. To provide for a State Fire Marshal with power (among others) to make rules and regulations for the sale, handling, keeping, storage, use, manufacture, transportation or other disposition of crude petroleum or any of its products, and the materials and construction of receptacles and buildings to be used for any of these purposes.

*SB*-246. To prohibit price discrimination in commerce.

### Oklahoma

**(Legislature convened Jan. 3, adjourned March 29)**

#### Bills Enacted

*HB*-415. New gasoline tax law, increasing allowance from 2 per cent to 2.50 per cent. Provides for exemption of gasoline used for agricultural purposes and in aircraft. Allocation of revenues is changed. Approved.

*HB*-485. Imposes a tax of 4 cents per gallon upon the use of fuel—except fuels subject to gasoline tax—for propelling vehicles upon public highways. Approved.

*HB*-437. In place of present inspection fees an excise tax of 8/100-cent per gallon is imposed in the same manner as other taxes upon motor fuels. Provides that Corporation Commission shall prescribe an octane rating for motor fuels. Approved.

*HB*-135. Continues present severence tax of one-eighth cent on every barrel of oil produced in the state until June 30, 1941. Approved.

*HB*-503. Continues present tax of 2 per cent upon gross receipts derived from sales of tangible personal property until June 30, 1941. Gasoline exempt. Approved.

*HB*-505. Imposes a tax on storage, use, or consumption of tangible personal property at rate of 2 per cent of purchase price. Gasoline exempt. Approved.

*HB*-11. Repeals Port of Entry Act. Approved.

*HB*-192. Provides for allocation of revenues derived from registration fees. Approved.

*HB*-544. Provides for an excise tax of 2 per cent on the value of vehicles at the time of first registration to raise money for public welfare. Approved.

*HB*-673. Provides that delinquent date for registration of motor vehicles shall be changed from March 31st to May 1st. Approved.

*HB*-616. Provides that Corporation Commission shall make regulations for design, construction and operation of equipment used for handling and storing liquefied gases. Approved.

*SB*-34. Extends Interstate Compact to conserve oil and gas for a period of two years from September 1, 1939. Approved.

#### Bills Which Did Not Pass

*HB*-92. To reduce gasoline tax from 4 cents to 3 cents per gallon.

*HB*-84. Provides for tax-free sale of gasoline used for agricultural purposes.

*HB*-91 *and SB*-45. To permit sale of motor fuel tax-free provided that the purchaser executes a certificate that the motor fuel will not be used for any purpose except lighting, domestic fuel, or for agricultural purposes and provided further that the seller executes a certificate that he believes the fuel is to be so used.

*HB*-217. To reduce inspection fee to 3 cents per 100 gallons for inspecting oil and gasoline in bulk quantities. The present charge is 4 cents per barrel of 50 gallons. Receipts to go to general fund.

*HB*-456. To require the posting of signs stating selling price per unit. Provided that posted price shall include city, state, and federal taxes. Sales at other than the posted price and sales below cost prohibited.

*HB*-50 *and* 203. To levy a severence tax of 2 per cent of cash market value of total production of all natural resources including petroleum and natural gas.

*HB*-283. To impose a tax of 1 cent per gallon on all gasoline distilled, manufactured, or refined in Oklahoma. Gasoline upon which this tax had been paid would be exempt from gasoline sales tax.

*HB*-70. To impose a graduated tax on chain stores. Filling stations engaged primarily in sale or distribution of petroleum products exempt.

*HB*-96. To impose a graduated tax on chain stores. Filling stations where average daily stock of gasoline, motor oils or automobile accessories carried does not exceed $1500 exempt.

*HB*-450. To impose a graduated tax on chain stores. No exemption for filling stations.

*HJ Res*-3. To authorize the governor to enter into negotiations with the governors of adjoining states relating to the abolition of ports-of-entry.

*HB*-55. To provide for the distribution of the gasoline tax.

*HB*-62. To repeal the mileage tax on motor vehicles.

*HB*-157. To provide that only 97 per cent of 1 cent of gasoline tax shall go to counties for roads instead of 1 cent as provided at present.

*HB*-448. To extend motor carrier regulations to include all carriers.

*HB*-466. To reduce the maximum allowable width of vehicles from 96 to 90 inches and the height from 12½ to 11 feet.

*HB*-27. To provide that continued pollution of rivers shall not confer any vested right and that continued pollution in violation of any statute shall be a continuing offense.

*HB*-315. To prohibit wholesalers and retailers from selling below cost.

*HB*-327. To prohibit advertisements within the public view of the highways. Exempts advertisements erected by the owners of a place of business relating solely to the goods or services sold or furnished at such place of business.

*HB*-412. To provide that the use of sweet gas for any purpose other than for light, fuel, power repressing, or efficient lifting of oil shall constitute waste; provided that the natural gasoline content may be extracted therefrom.

*HB*-536. Fair Trade Act.

*SC Res.*-5. To memorialize the U. S. Congress to increase federal gasoline tax from 1 cent to two cents and to distribute all of increase among states for highway purposes.

*SB*-39. To abolish present system of refunds and to establish an exemption permit system for gasoline used for agricultural purposes.

*SB*-4. To transfer duties of state oil inspector from the Corporation Commission to the Tax Commissioner. Provides that 90 per cent of the moneys collected shall be credited to the General Revenue Fund and 10 per cent to the tax commission for payment of expenses—any balance at end of year to revert to the General Revenue Fund.

*SB*-24. To make Commissioner of Public Safety ex-officio State Oil Inspector and to provide that each member of Division of Highway Patrol of Department of Public Safety shall be ex-officio Deputy Oil Inspector. All fees collected would be credited to General Revenue Fund.

*SJ Res.*-14. To enact a constitutional amendment imposing a tax upon all transactions at the rate of 1 per cent of entire amount of every transaction. Would not apply to the gross production of oil or sales of gasoline.

# BULLETINS

## California Oil Probe Calls Refiner Witnesses

LOS ANGELES—Federal grand jury conducting an anti-trust investigation of California oil marketing companies began June 12 to call sales representatives of independent refining companies. Testimony of these witnesses was preceded by office interviews with federal prosecutors. Last week the grand jury heard dealer witnesses. It is reported that 150 witnesses will be served with subpoenas in the next few days.

## Court Decision Enlivens Texas Hearing

*By Teletype*

AUSTIN, Tex., June 12.—The statewide proration hearing here today was enlivened by a discussion of the Federal court injunction against the method of prorating the East Texas field.

From some of the operators came suggestions as to method of procedure and from others came suggestions that the Commission be in no haste but that it give the matter deep study.

The line of questioning by the Commissioners in obtaining testimony for the next order indicated they were considering possibility of keeping Saturday and Sunday shutdowns in effect in July, except for the fifth week-end in that month.

The possibility was seen in some quarters that as a result of the Federal court decision the Commission might abandon its plan of writing a 60 or 90 day order and write one only for July.

## TNEC Oil Hearings Definitely Off Until Fall

WASHINGTON—Temporary National Economic (Monopoly) Committee officials said today that the oil industry hearings would be postponed until September or later.

# Pros and Antis Give Views On Marketing 'Divorce' Bill

N. P. N. News Bureau

WASHINGTON, June 12. — Already thrice-continued, hearings on the Harrington bill (H. R. 2318) to divorce marketing operations from other branches of the petroleum industry, have been continued again, this time to June 21.

Continuance was announced by Chairman Healey (Mass.) of the House Judiciary subcommittee which is holding hearings on the bill, following another day of testimony here June 7, when four independent oil marketers appeared in favor of the measure, a representative of the shipping interests appeared to offer an amendment, and two witnesses made statements in opposition.

First witness in favor of the measure at the June 7 hearings was Frank R. Thompson, head of the Anderson Petroleum Co., Anderson, S. C., who said he also appeared as a representative of Dixie Interstate, the Dixie interests in the South (he is president of the Dixie organization in South Carolina); independent oil marketers' organizations in his own state, North Carolina, Georgia, Tennessee, and of the Dixie jobbing organizations in Tennessee and Alabama headed by Sam H. Arnold of Fayetteville, Tenn.

Mr. Thompson told the committee that, when he was employed one of the major companies he had "helped put the noose around the necks" of a lot of independent marketers, so that he knew, he said, the major company tactics.

### "Web Within a Web"

He described major oil company exchange agreements as a "web within a web", and told how three or four different brands of gasoline may come out of one tank—the committee expressed considerable interest in this statement.

Then, responding to a question by Rep. Sam Hobbs, Ala., Mr. Thompson told how the subsidization of marketing losses by major companies results in driving the independent marketer out of business.

Chairman Healey suggested that the majors' policy of taking marketing losses might redound to the benefit of the consumer. Mr. Thompson disagreed, saying that if a "fair" profit was taken in all branches, including marketing, the price to the consumer would be no more, possibly less.

Rep. Springer, Ind., asked if the proposed divorcement wouldn't disrupt the entire petroleum industry, and Thompson answered that it could be accomplished without much difficulty, likening the present situation to the "reconstruction period" after the Civil War, and declaring that divorcement would solve the evils.

### "Financially Sound"

R. E. Breed, of the General Refining Co., Baltimore, also appeared in behalf of the bill, asserting it was "financially sound" for investors in big and little companies alike, and that it was economically sound for the industry and for the government.

Breed contended that major company investors are now being "cheated" because the profit their companies make in production, transportation and refining are now being dissipated in marketing losses. The investors can't, under present conditions, put their money in one branch only.

Mr. Breed also declared that the divorcement of marketing would cut down overhead and eliminate "palatial" stations which, he said, can't pay for themselves without subsidy.

Rep. Hancock asked Hadlick to review the meat packing divorcement cases, to which witnesses have referred from time to time, and then asked him if his remedy was not at law, rather than through Congress.

"I've been beating at the door of the Department of Justice since 1935," Mr. Hadlick replied. He said litigation would aid in solving the problem, but that it would only disintegrate those now integrated, and would have no eye to the future.

Rep. Hancock also wanted to know what would be the fate of the "hundreds of thousands of investors" in the major companies if the bill becomes law. Hadlick, Thompson, Breed and other witnesses said they would have the same interest in the new marketing company as they had in the old company, but that the marketing company stock would be made to pay a profit, or else they would get rid of it, and the new owners would want to know why it didn't show a profit.

William Earle White, Delta Oil Co., Petersburg, Va., president of National Oil Marketers Assn., and an official and active member in the Virginia Independent Oil Jobbers Assn., appeared briefly, asserting that anything he could say as to conditions in the southeast would be repetitious of what had gone before. Mr. White presented copies of resolutions favoring the Harrington bill which the Virginia association adopted last month.

Another witness in favor of the measure was H. A. Crouthamel, a Baltimore "split" dealer and secretary of the Maryland Ass'n. of Petroleum Retailers, who also disclosed cases of gasoline "exchanging," declared that the major policy resulted in employment of less labor; agreed that there are "too many stations," and declared that the public will pay when and if the major companies get "monopolistic control" of marketing.

Crouthamel said his theory was that the industry has grown too fast, and that the government had not put enough restrictions on it.

Other witnesses at the June 7 hearings were Edwin H. Duff and Capt. H. A. Peterson, representing the American Merchant Marine Institute, and M. R. Singleton, of Valvoline Oil Co.

Duff and Peterson neither opposed nor advocated the bill, contending that they were interested only in the merchant marine. They offered an amendment which would provide that "nothing in this act shall be construed to apply to dry-cargo vessels, provided with deep tanks or double bottoms. . . ."

Mr. Singleton of Valvoline presented a statement in opposition to the measure, holding that it would increase the cost to the consumer, would result in chaos in the industry, and was uneconomic.

He traced the history of the Valvoline company from 1866, saying that "no major company has any interest or ever did have any interest whatever" in the company. However, Valvoline is an "integrated" company, of the type the Harrington Bill would dismember, he added.

Commenting on the contention of proponents that integrated companies have absorbed marketing losses in order to gain control of the industry, Mr. Singleton said that if the integrated companies had wanted to get rid of the independent jobber they could have just cut off his supply, instead of the slow method charged.

The Valvoline official also emphasized the fact that there has been a "consistently, steadily declining price that the . . . general public has had to pay" for petroleum products, and said this is because the integrated companies operate efficiently, "because millions of dollars are spent each year to develop better refining methods, and because of the scientific methods that have been developed through which new oil fields have been discovered."

"There is no question that disintegration will raise prices to the consumer, and this committee will be wise if it considers that effect very carefully," Mr. Singleton declared, adding:

"If there is anything wrong in the oil industry, instead of using an old fashioned blunderbuss and shooting everyone in sight, would it not be better to use a rifle and pick off those individuals or companies that may be responsible?"

Thomas J. Keefe, American Motorists Association, also appeared in opposition, contending the bill would increase prices to the automobile user and consumers of other oil products. Keefe also submitted copies of his testimony at the hearings on the Connally "hot" oil law, when he appeared in favor of that legislation.

## Since When Is An Oil Convention 'Work'?

WASHINGTON—Employers will have to pay wages for time spent by their employes at the "annual barbecue and ivory gallop" if such insttiutions are to be continued —under a new ruling by the Wage-Hour Division, which holds:

"Time spent in attending meetings and lectures sponsored by the employer (whether or not attendance is voluntary) should be considered time worked if such meetings and lectures are related to the employes' work."

This could easily be extended to sales meetings, conventions at which employes mingle with others in the same type of business for the purpose of getting ideas related to their work, and, without much further stretching, it could be applied to "company picnic," banquet, or other employer-sponsored affair.

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# *Oil Seeks More Pennies Today To Circulate THEM In the Nation's Pockets*

**By WARREN C. PLATT, Editor**

Probably the greatest problem before the whole country right now, as well as before the oil industry, is to get profitable prices, as well as to sell more goods.

Government at Washington is recognizing the importance of this problem by trying to get up prices of farm produce, by holding up the price of gold and silver and by affording every aid to the efforts of labor to get higher wages.

But, in the case of industries over which the government has not yet obtained any amount of control, no attention seems to be given to prices, no matter how low and unprofitable they are. In fact what public thought the New Deal Administration seems to give the unprofitable prices of these still free industries is to condemn them as too high. A grand jury investigation is now being conducted by the New Deal of a number of things in the oil industry including, according to its announcement, "price levels for gasoline" that have "continued to a large extent to be artificially maintained." By chance, does it mean at too low a level?

For months now there has been much condemnation within the oil industry of unprofitable prices. The criticism has been heard all the way from the producer to the retailer. Starting this morning, those who have criticized are given an opportunity to back up their spoken beliefs that higher prices are needed, by following the lead of the Sinclair Refg. Co. which has announced a general advance of gasoline prices of a half cent a gallon in the 42 states in which it operates.

But a half cent a gallon on gasoline will not be a sufficient advance to put the industry "in the black" according to all reports. Therefore it will be interesting to see if any one will have the constructive courage to "see" Mr. Sinclair his half cent and then "raise" him another half cent or more. If there are any such individuals will they please wire us of such action?

There is not only the necessary reason that gasoline prices today are unprofitable, to justify—in fact, demand—higher prices, but there are encouraging factors in the industry that are naturally working toward better prices. Such factors can be summed up as follows,—

1—Gasoline consumption is continuing to increase this year and will be at an all-time high, something no other industry, we believe, can lay claim to these depression days.

2—The enforcement of conservation regulations—proration—in that big oil producing state, Texas, as well as in the other important oil states of the Southwest, continues to improve and to be made more efficient. Some difficulty was threatened in Texas this Spring but the members of the Texas Railroad Commission now seem to be in agreement again on continuing the sound engineering practices by which the life of its fields have been greatly increased and floods of unnecessary oil held back from today's markets.

3—Renewal of the Interstate Oil Compact by the active oil producing states and the passage of the Connally "hot oil" law, now waiting final action in Washington as to just how long it shall be extended. This assured the oil industry that the federal government stands behind its efforts and the efforts of the oil producing states to develop and enforce the best of engineering practice in oil production.

4—Inauguration by Michigan of enforcement regulations for its new oil and gas conservation law.

5—Continued reduction of motor fuel stocks which have been consistently below last year's figures all this year.

Against these encouraging factors for better prices are three important bearish ones,—

1—The new fields in Illinois continue to grow and to throw on the market, right in the heart of the country's biggest consuming area, an increasing amount of crude oil, of which considerable is today going at under the market prices.

2—Some producing interests, said to have operated in East Texas and to have opposed oil conservation there, are fighting conservation regulation in Illinois, so whether there will be a conservation law in Illinois will depend on developments of the next few weeks. With no Illinois conservation law then more under-the-market oil can be expected there with a consequent probable pulling down of prices everywhere and a backing up of Mid-Continent crude oil still more and, in addition, forcing a lower price on that oil.

3—The stronger position of the price-sellers of gasoline, trackside operators etc. who today are able to take full advantage of the national advertising campaign of the Ethyl Gasoline Corporation for their so-called "unbranded" gasolines, particularly since the Ethyl Corp. was recently ordered by a federal court to discontinue its interest in the prices at which gasoline marketers sold. However, for the moment at least, these differential sellers seem to be trying to move the same volume of gasoline as

in the past but at a smaller differential, counting on the pulling power of Ethyl to make up the difference.

But above all these pros and cons, seems to be the determination of executives of big companies and little and of price-sellers, to call a halt to the eternal price cutting because oil prices are down now where they hurt. The Standard of Indiana a week ago, raised its "subnormal" markets up to "normal," Standard of Nebraska and Continental Oil have done the same. Socony-Vac. has advanced its commercial consumers prices. Trackside and differential sellers are reported to be edging their prices up from the excessively low levels of winter and spring.

Despite all these changes N.P.N.'s gasoline index shows prices are still below a year ago. However by the time the full effect of all these changes, including the Sinclair general advance, has been felt, the industry may be back to last year's levels which were none too good to say the least. The June 5 average of 50 cities dealers tank wagon prices per gallon of gasoline was 9.52c while a year ago the average was 10.16c. So even the Sinclair advance, if it sticks, will not bring prices quite up to last year.

While the Oklahoma tank car price, the basis of so many jobber contracts, has improved since spring, from 4.125 to 5 cents in February to 5-5.375 cents last Friday, those prices are under last year's by an eighth of a cent as of June 6, 1938. However the refiners got a much better break a year ago because the Oklahoma price for 70-72 Octane did not get below 4.875 cents low that winter and spring while most of the time the low was 5 cents and above. But this year the low stayed a full cent below for most of the winter and spring.

Jobbers and marketing departments also got a better break a year ago because discounting of all kinds, by majors and by jobbers and dealers was far more prevalent this year. The so-called "Iowa plan" of giving the gasoline retailer full power to do what he pleases with his price, has reached a new low in disastrous results for the industry today. It is now generally recognized that the dealer is helpless to remedy the situation and majors and jobbers are getting back in the service station business.

H. F. Sinclair sums it all up in his announcement of last week when he says that ". . . the situation has been getting steadily worse for a long time. In the past 18 months the gross revenue from a barrel of crude oil has declined more than 50 cents. It must be obvious that the industry cannot continue to operate on a product price level which does not permit the refiner-marketer to meet his costs and recover what he pays for his raw material."

It might well be added that no industry can afford to continue on price margins that are unprofitable. Nor is it fair to the employes, those from whom the industry buys, the stockholders nor the country at large, for an industry to continue to so operate if in anyway it can avoid loss.

So now that the oil industry seems to be agreed that its prices are unprofitable, every executive, big and little, and every jobber and retailer, should recognize his responsibility and duty to himself, his people and to the country at large, to do everything within his power and which is lawful to get fair and profitable prices.

The ridiculous part of all this is that the oil industry is talking and struggling over a fraction of a cent, or a cent or so, on the price of petroleum products, an amount which in total for a year would not be noticed by the average consumer. The total amount that would put the oil industry in a fair position is not a circumstance to the taxes the consumer now pays, either out of pocket or in credit—which has to be paid for in the future—for all the lavish spending now going on at Washington. In fact, the amount of additional income that the oil industry appears to need is not to be compared even with what the government is paying out every year to raise the prices of the farmer's products, as well as the gold and silver of our mines and the mines of the entire world.

What additional money the oil industry may collect for its products will be used in the same way that the money heretofore collected has been used, right here in the United States for the continued payment of good wages to a million and more Americans who work fair hours; for the purchase of supplies and equipment from a large part of this country's manufacturing world, and, if possible, for the payment of a little money to the million and more stockholders who have put up their money for this $15,000,000,000 industry.

This extra penny or two would not be "hoarded," would not be locked in "Wall Street Vaults," would not be stuffed in the pockets of "economic royalists"—unless you call the great so-called "middle class" and even some of the thrifty among the "lower class"—"economic royalists."

This extra penny would be put to work at once, as it has been in the past, to help keep Americans and American business off the dole, away from the offices of the RFC and all the other "lending" agencies at Washington, and off the WPA.

So, may the American oil man get his back up and pitch in and do a constructive job of getting a fair and profitable price for his merchandise and for his managing efforts this summer the season of the biggest gasoline consumption in history. Thereby, he will truly and most patriotically and thriftilly serve his fellow man.

## DEATHS

*So widespread is the oil industry that many friends are separated for years. NPN would like friends and relatives of any deceased oil man to send in notice of his passing for publication.*

### James H. Wanzer

James H. Wanzer, formerly assistant manager of the accounting department of the Socony-Vacuum Oil Co., Inc., died June 5 at his home in Brooklyn, N. Y., at the age of 82. Mr. Wanzer had been with the Standard interests for more than 40 years.

He was the father of Charles H. Wanzer, Commissioner General for the Dominican Republic to the World's Fair, and president of Pan-American Industries, Inc. and of the Dominican Chamber of Commerce. He leaves also a daughter, Mrs. Sarah M. Gorman.

* * *

### Ralph L. Balshe Drowns

Ralph L. Balshe, a member of the engineering staff of Petroleum Rectifying Co. of Calif., was accidentally drowned at Houston recently. He was 33 years of age and is survived by his widow and two children who live at Houston.

Mr. Balshe came with Petroleum Rectifying in 1931. He was assigned to the Texas division early this year after serving in engineering and research capacities in California, New York and the Mid-Continent.


## Welcome Rotarians

NATIONAL PETROLEUM NEWS extends a cordial invitation to come and see us during the International Rotary Convention in Cleveland, June 18 to 23. Our entire facilities are at your disposal. If we can be of service to you while in our city we shall be delighted.

Everyone in Cleveland wants the Rotarians to have a good time. We endorse that sentiment completely. Come in, make yourself at home. Go through our publishing offices. Meet the men and women who get out NPN—your oil magazine.

If the ladies are coming with you, bring them along. Maybe some of the "girls" in our office can give them some good tips on where to shop and dine.

If you men want to find out if the Oil Industry is still functioning serenely while you are away from home, we will give you the last-minute news by teletype.

Anyhow, here is a cordial invitation to call and see us. We are happy to have the Rotarians as our guests. We are looking forward to renewing old friendships and making new ones. You will be most welcome.

**The Staff of**

**THE NATIONAL PETROLEUM NEWS**

# OIL TRANSPORTATION NEWS

**Latest developments in freight rates, legislation, taxes, regulations, and new construction affecting the transporting of petroleum products by truck, barge, tanker, pipeline, and railroad.**

## Private Truck Owners Fight Transportation Control Bill

N. P. N. News Bureau

WASHINGTON, June 12.—A fight to have control of private truckers completely eliminated from the new omnibus transportation bill (Senate Bill 2009) in congress is promised by the National Council of Private Motor Truck Owners and the National Grange.

As passed by the Senate, the bill makes the same provision for regulating private carriers "if the need therefor is found" as is contained in the Motor Carrier Act, 1935. That is, it would empower the Interstate Commerce Commission to establish regulations governing qualifications and hours of service of employes and standards of equipment if, after investigation, ICC determines there is a need for such "safety" regulation.

An investigation into the need is now under way, but has not yet been determined.

Contention of the Grange, representing thousands of farmer truck-owners over the country, and the private carriers' organization, representing commercial firms operating their own trucks in transportation of their own supplies, products, or equipment, is that there is no public demand for such regulation, and that provision for it was slipped into the Motor Carrier Act without a hearing. Therefore, they argue, it should be dropped.

According to the two groups, which have sent a joint letter to Chairman Clarence F. Lea (Calif.) of the House Interstate Commerce Committee, the only suggestion of private carrier regulation in the Motor Carrier Act at the time hearings were held on it over four years ago "was the provision of section 325 that the ICC should investigate and report to Congress . . . as to the need of regulation."

### Senate Changed Bill

But, the letter points out, after hearings were closed, the Senate committee altered the bill so that the ICC could go ahead without reporting to Congress on its investigation, if it found a need for regulation of private carriers. In this form it was passed, and substantially similar language is used in Senate 2009, which is designed to codify all existing transportation legislation.

"A review of the entire situation," says the letter, "leads us to the conclusion that the orderly and fair procedure in this case would be to eliminate from the pending legislation all provisions for the regulation of private motor trucks . . . until there is a legitimate public demand for federal regulation."

Signed for the Grange by Fred Brenckman, Washington representative, and for the Private Carriers Council by Arthur C. Butler, managing director, the letter concludes:

"It seems to us that there is no legitimate excuse whatsoever for making private motor carriers subject to federal regulation. No good purpose would be served by taking such a step. Private carriers are now subject to state regulation and control, and the states are footing the bill. Why should federal control and regulations be superimposed upon State control and regulations? With the federal government collecting six billion dollars a year in taxes and spending about ten billion, why should this expense be duplicated?

"That is not the only consideration involved. For many years the federal government has been steadily encroaching upon the rights and prerogatives of the states. Unless a halt be called upon this un-American tendency, the result inevitably will be the destruction of our dual system of government."

Chairman Lea's committee is expected to take up the omnibus transportation measure, already passed by the Senate, this week.

## Oil Transporter in Pacific Northwest Gets ICC's OK on New Origin Points

N. P. N. News Bureau

WASHINGTON, June 12. — Truck transportation of petroleum products from Columbia River terminals in the Pacific Northwest has been given another "boost" by Interstate Commerce Commission, which has just authorized Asbury Transportation Co. to add Umatilla, Oreg., and Attalia, Wash., both on the river, as origin points for hauls into Washington, Oregon and Idaho.

Asbury operates about 60 pieces of tank truck equipment in the Inland Empire area.

In its report on the Asbury application ICC said:

"Truck transportation is an important factor in the movement of petroleum as well as countless other commodities consumed in Idaho, Oregon and Washington. . . The record discloses that the channel of the Columbia River has been considerably improved. At present barge lines transport petroleum products from the Portland district to The Dalles and Attalia. The Inland Navigation Co. has indicated that it will extend its service to Umatilla and establish the required terminal facilities at that point, provided motor carriers receive authority to carry petroleum products from Umatilla, which would serve as a point of origin for further distribution. . . .

"Numerous witnesses appeared in support of the application. The Public Utilities Commission of Idaho supports the application in the interest of more adequate and efficient transportation. Its representative expressed the opinion that the additional service proposed by applicant will be an important factor in the reduction of transportation costs. As a consequence, the price of petroleum products is expected to be lowered with corresponding benefits to the public. . .

"It may be noted that testimony (in favor of application) was offered not only by representatives of major oil companies, but also by representatives of farm organizations and others interested in prompt and efficient transportation facilities. . . . The witnesses stressed the fact that truck transportation of petroleum products from Umatilla would result in a reduction in the cost thereof. Idaho is lacking in crude oil as a natural resource and is dependent on supplies from other sources. Efficient truck transportation into Idaho is expected ultimately to be reflected in lower cost of farm products and other commodities consumed therein."

* * *

### Hearing at Portland, Ore. Set in Tariff Bureau Case

N. P. N. News Bureau

WASHINGTON, June 12.—Interstate Commerce Commission has added still another proceeding to the series of Inland Empire petroleum rate hearings to be held at Portland, Ore., beginning June 15, (N.P.N. June 7, p. 17). The new case involves reduced rates filed by the Pacific Inland Tariff Bureau, Inc., as agent for truck lines hauling from Columbia river terminals at Umatilla, Ore., to Washington points.

## Rails Consider Cuts On Oil in Southeast

ATLANTA, Ga., June 12.—Southern Freight Ass'n. hearings begin today on proposal (Submittal No. 19263) for establishment of gasoline, kerosine and fuel oil rates from Bellwood, Va., to points in North Carolina and Virginia on the same basis as those from Richmond and Hopewell, Va. Bellwood is a short distance below Richmond on the James River.

Proposal for truck compelled rates on carload lots of fuel oil shipped from Charleston, S. C., Savannah, Port Wentworth, Ga., Richmond, and Wilmington, N. C. to Spencer, N. C., is also on the docket.

Another proposal to be considered calls for a 10 cent per hundredweight rate on crude shipped from White Oak Junction, Ky., to Somerset, Ky., and a 12-cent rate to Sunbright, Tenn., from the Junction.

### Oil Trucker's Employes Vote On Union Preference

N. P. N. News Bureau

WASHINGTON, June 12.—An election has been ordered before June 23 among truck drivers and mechanics of the Brewer Petroleum Service, Inc., Somerville, Mass., to determine if they want to be represented by an A. F. of L. or a C. I. O. union for collective bargaining purposes.

# ICC Approves Employe Tests

N. P. N. News Bureau

WASHINGTON, June 12.—Interstate Commerce Commission has approved new rules covering qualifications of trucking employes for safety of operation for motor carriers effective Jan. 1, 1940.

The rules are not applicable to private carriers. ICC has an investigation now underway, to determine need for such regulation of private carrier employes and equipment.

Outstanding changes in the regulations are the new eyesight standards set up and provision for an initial physical examination for all new drivers applying for employment after the effective date. The regulations also make minor changes in light and brake specifications, and remove restrictions against transportation on trucks of "unauthorized persons", placing responsibility for carrying such persons on the carrier.

The new additions, now being printed in the form of a pocket-sized handbook, will be mailed in about a month to every motor carrier listed with the Commission.

The Commission makes no mention of size and weight regulation nor of drivers licensing in the new rules, commenting that: "no definite plans are at present under consideration by the Commission concerning the licensing of drivers engaged in operations in interstate or foreign commerce", and "an investigation to enable the Commission to report to the Congress . . . on the need for Federal regulation of motor vehicle sizes and weights and to prescribe reasonable requirements . . . was instituted Nov. 8, 1937, and research work in connection with this proceeding is under way."

No regulations for transportation of explosives and other dangerous articles were printed, since these rules also are being taken up in a separate ICC proceeding.

### 'Trainload' Rates Proposed On Molasses

WASHINGTON, June 12. — A precedent for trainload rates on petroleum products may be in the offing by virtue of requests just filed with Interstate Commerce Commission for similar rates on Cuban blackstrap molasses from New Orleans to Peoria, Ill.

### Cut in Rate to Canton, O. Proposed to Rails

N. P. N. News Bureau

WASHINGTON, June 12. — Central Freight Ass'n. railroads have under consideration a proposal by shippers to establish a rate of 18-cents per 100 pounds on cracking stocks from Southern Illinois fields to Canton, Ohio. Present applicable class rates are considerably above this figure.

Several railroads already have filed rates of 20-cents per 100 pounds applicable June 30, on crude oil from Southern Illinois points to points in the Twin City area.

## New ICC Setup Puts Eastman In As Head

N. P. N. News Bureau

WASHINGTON, June 12.—Interstate Commerce Commissioner William E. Lee will be Chairman of Division 5—the Motor Carrier Division—of the ICC under its new reorganization, just effected. Commissioner Joseph B. Eastman was elected Chairman of the entire Commission for a three-year term.

Chairman Eastman was Federal Coordinator of Transportation when that office was in existence, and the reports made under this set-up will be remembered by persons in the truck industry. Only recently Commissioner Eastman advised Congress that he thought proposals to regulate private carriers were "premature."

Serving on Division 5 with Commissioner Lee will be Commissioners John L. Rogers and J. Haden Alldredge.

## Ohio Standard to Build New Pipeline Terminal

N. P. N. News Bureau

CLEVELAND, June 12. — Standard Oil Co. of Ohio will build a pipeline terminal, warehouse, a 2,000,000-gallon gasoline "tank farm," and an office building on a newly-acquired 10-acre site on Tennessee Avenue near Paddock Road in Cincinnati, according to an announcement by A. B. Caldwell, division manager. Sohio will also build a continuation of its gasoline pipeline from Cheviot, Ohio to the new bulk plant. The line originates at the company's refinery in Latonia, Ky.

The properties, which will serve the four counties of the Cincinnati district, will cost in the neighborhood of $375,000, exclusive of the pipeline extension, it was understood. Project will be started in a few weeks, and completed early next year.

## ICC Decides Agent Is 'Private Carrier'

N. P. N. News Bureau

WASHINGTON, June 12. — An oil company which receives the products of another oil company on consignment, undertaking the sale and distribution of the products on commission, and operating trucks as an incident to the business, is not a "for hire" trucker, and therefore is relieved of the necessity of getting Interstate Commerce authority to operate, ICC has ruled.

The commission, acting on the application of Teton Oil Co., Victor, Idaho, held that the company is "not engaged primarily in the transportation of property, and are not carriers for hire in their motor vehicle operations. The transportation performed by applicants is of property of which they are the bailees for the purpose of sale, and in the furtherance of a commercial enterprise, namely, that of commission merchants."

Motor Carrier Act, 1935, defines a "private" carrier as one transporting property of which it, or he, is the "owner, lessee, or bailee. . . . when such transportation is for the purpose of sale, lease, rent, or bailment, or in the furtherance of any commercial enterprise."

## Illinois Bill to Ban Trucks Over Sunday Passes State Senate

N. P. N. News Bureau

CHICAGO, June 12. — The Thompson-Lohmann Bill (Senate 155) to ban trucks from principal highways of Illinois for a 24-hour period over Sundays and holidays passed the upper house of the Illinois legislature on June 7 by a vote of 27 to 23. Bill now goes to the House for action.

The measure, which was understood to have the backing of rail interests, was vigorously opposed by trucking interests. It was amended considerably, but exemptions were made only for haulers of newspapers, milk, butter and eggs.

* * *

## Texas Commissioner Proposes Truck Ban

AUSTIN, Tex., June 12.—Because of an "unreasonable number" of truck-involved holiday accidents last year, Texas Railroad Commissioner Jerry Sadler has suggested to his commission that trucks be banned from Texas highways from 9 a.m. to 9 p.m. on Sundays and holidays. Trucks handling perishables would be the only exceptions, according to his recommendation.

Statistics compiled by the Department of Public Safety were cited by Commissioner Sadler in support of his suggestion.

The suggestion, according to the commissioner, was receiving much favorable comment at the capital.

## Weight and Length Limits Are Raised In Nebraska's Law

LINCOLN, Neb., June 12.—Restrictions on tractors and semi-trailers in Nebraska were liberalized with the passage of L.B. 350, one of the last bills considered last week by the unicameral legislature. The vote was 22 to 17.

Tractors and semi-trailer length was increased to 42.5 feet and the total gross weight to 40,000 pounds. Restrictions have been 35 feet in length and 32,000 pounds weight.

## ICC Postpones Hearing In Rail-Shippers' Case

N. P. N. News Bureau

WASHINGTON, June 12. — Hearings in the case brought up to the Interstate Commerce Commission by the Petroleum Rail Shippers Assn., charging discriminatory rail and pipeline rates on petroleum products from the Mid-Continent to other points in the United States, will not be held until sometime in September, it has been learned.

No date has been set for the continued hearings, which had been scheduled for Dallas, Tex., on July 10.

## ICC Calendar On Oil Trucking

### Decisions

**Arrow Transportation Co. of Delaware,** Richmond Highlands, Wash. Certificate granted for operation as a common carrier of petroleum products from points in Oregon and Washington to points in Idaho, Oregon and Washington over irregular routes.

**Asbury Transportation Co.,** Los Angeles, Calif. Certificate granted for operation as a common carrier of petroleum products from points in Oregon, Washington and Idaho, from The Dalles and Umatilla, Ore., and Attalia, Wash., to certain specified territories in Idaho, Oregon and Washington, over irregular routes.

### Hearings

**Devere and Wallace, Inc.,** Los Angeles, Calif. June 22, Los Angeles, on common carrier application to transport petroleum products in Calif., Nev., Utah and Ariz. over regular and irregular routes.

# Court Throws Out Lawsuits On 3% B.S.&W. Deductions

N. P. N. News Bureau

TULSA, June 12.—Suits filed against twelve oil companies by special government attorneys on behalf of the Osage Indian tribe and known as the "3 per cent cases" have been tossed out of court by Federal Judge Franklin Kennamer. Suits against five companies operating pipelines were ordered to trial.

The suits were filed in 1936 and sought to collect a total of nearly $8,000,000 from the defendants on the grounds that the 3 per cent deduction for basic sediment and water had resulted in alleged short payment to the Osage tribe for its oil between 1915 and 1936.

In dismissing the suits against the 12 companies Judge Kennamer contended the government for years had approved the operation of the leases in the Osage nation and accepted the price paid for oil and the gaugings submitted. He also pointed out that the oil companies did not do business with the Osage Indians but with holders of oil and gas leases on Osage land, and that the Indians and the government had accepted the operation of the leases by the lease holders. The oil companies had contended that they did business with the lessees and not with the Osage Indians.

Those companies against whom suits were dismissed were:

Gulf Oil Corp., Mid-Continent Petroleum Corp., Sinclair Prairie Oil Co., Stanolind Crude Oil Purchasing Co., National Refining Co., Phillips Petroleum Co., The Texas Co., Sinclair Refining Co., Barnsdall Oil Co., Continental Oil Co., Skelly Oil Co., and Carter Oil Co.

The defendants that will have to face trial are:

Gulf Refining Co., Cosden Pipe Line Co., Stanolind Pipe Line Co., Oklahoma Pipe Line Co., and Texas Pipe Line Co. of Oklahoma.

Attorneys for the government have announced they will appeal Judge Kennamer's ruling to the circuit court of appeals.

## Around THE MID-CONTINENT

. . . By ALLEN S. JAMES

Oklahoma tax officials apparently did not wait even for the funeral of the late H. V. Foster, wealthy oil man of Bartlesville, Okla., before they began to estimate rather guardedly how "many millions" the state would collect from the estate.

One estimate placed the amount sufficiently high that it would just about wipe out the state's deficit and accordingly eliminate the necessity for an extra session of the legislature.

There is no doubt Mr. Foster was an extremely wealthy man. At the time he sold the Foster Petroleum Co. to the Indian Territory Illuminating Oil Co., of which latter company he was president for 33 years, he was rated as the wealthiest man west of the Mississippi river.

Mr. Foster's father had come to Oklahoma before statehood and with another brother negotiated for a blanket lease on the Osage Indian Nation, now Osage county, the largest one in Oklahoma. There was a period of tough sledding for the Fosters, but later H. V. Foster, and a few of the associates who had been with his father and uncle, organized the Indian Territory Illuminating Oil Co.

In 1924 Mr. Foster organized the Foster Petroleum Corp. and the two companies opened six of the major areas in the Greater Seminole field, and then opened the Oklahoma City field in 1928.

Mr. Foster's body was returned from California, where he died June 5, and interred in Memorial cemetery at Bartlesville, June 9, following private funeral services at the Foster home.

* * *

### • Frank Chase Retires

One of the best loved men in the natural gasoline industry in the southwest—Frank L. Chase—has retired as vice president of the Lone Star Gas Co. of Dallas.

As a token of appreciation for Mr. Chase's 22 years of service with the company he was given a watch by his associates at a testimonial luncheon last week. L. B. Denning, company president, outlined Mr. Chase's activities with the company, pointing out that he had been an outstanding figure in the nation's gas business for 38 years. As vice president and operating manager for Lone Star, he supervised the production, pipeline, compressor and telephone departments.

At the luncheon it was announced that Elmer F. Schmidt, vice president of the company, had been appointed operating manager in charge of production and transmission. He has been with the Lone Star since 1918.

Ex-Mayor John Frank Martin of Oklahoma City is going to take a rest from his four years of public service. That's all right as far as it goes, but the ex-mayor's rest is going to be a 5000 miles, estimated 500-stop trip to Canada and eastern United States with his wife and six—yes, that's right—SIX children, all in a seven passenger sedan!

The children—three boys and three girls—range in ages from 8 to 18 years, and Mr. and Mrs. Martin have announced they are going to keep an hour by hour, ice cream cone by ice cream cone, filling station by filling station log of the trip. That log ought to be an eye-opener for some oil companies.

The Martin youngsters have adopted, by a 4 to 2 vote, the following rules:

A drink of some kind every 50 miles.

The alternative of an ice cream cone and drink or hot dog and drink every 100 miles, but no diversion from that rule.

All food to be consumed before journey is resumed.

No arms are to be dangled outside and no various and sundry objects thrown at available targets along the road.

The Martin clan plans to make scheduled stops at Sault Saint Marie, Montreal, Quebec, Boston, New York and the world's fair, there, Philadelphia, Washington and then home.

And they're going to try to do it in a month!

* * *

### • An 'Oily' Menu

The Stewardson, Ill., high school alumni banquet recently was really oil minded. And it was because of a recent test drilled near there by Elmer Corn and J. A. Aylward of Wichita, Kan.

Here is the way the menu read:

Hot cores (rolls); Chicken a la Kingwood; Spuds (potatoes); Slush Pit (gravy); Mayor of Wichita (Corn); Cuttings (noodles); Salad with oil dressing; Wildcats (radishes); Offset (coffee); Pay sand (sugar); McQueen (ice cream); Royalty cake (Lady Baltimore); McClosky limes (mints).

Mr. Corn was mayor of Wichita at the time the test was drilled while Mr. McQueen was the drilling contractor, and the Kingwood Oil Co. was the company operating in that area.

# Farm Meeting Will Discuss Tractor Fuel

ST. PAUL, June 12.—A standardized specification for farm tractor distillate will come up for further discussion here next week during the annual meeting June 19 to 22 of the American Society of Agricultural Engineers.

The Society's Committee on Tractor Fuels, to provide a basis for discussion of a standard fuel and for co-operation with other technical societies, presented a proposed specification at the Society's meeting last fall. The proposed specification was for a minimum octane number of 30, and a distillation range between a minimum 5 per cent point at 325 degrees and a maximum end point of 540 degrees.

"Progress Toward A Standard Low-Grade Tractor Fuel," will be the subject of E. L. Barger, chairman of the Society's Committee on Tractor Fuel, and associate professor of agricultural engineering at Kansas State College, at the power and machinery division meeting June 20.

Two papers on alcohol-gasoline motor fuels will be presented at the same session. They are:

"The Possibilities of Alcohol As An Engine Fuel," by Dr. Harry Miller, formerly assistant director of research, Chemical Foundation of Kansas Co.

"Motor Fuels From Farm Products," by P. Burke Jacobs, senior chemist, U. S. Bureau of Chemistry and Soils.

A paper will be given by C. N. Hinkle, Standard Oil Co. of Indiana agricultural engineer, and a member of the committee on tractor fuel, on June 19, on "Preparation of Visual Material for the Extension Specialist" at a meeting of the private industry extension group.

### Trading Stamp Bill Passed In Wisconsin

MADISON, Wis., June 12.—Wisconsin's assembly last week passed the bill to prohibit the giving of trading stamps or tokens with the purchase of gasoline. It is now before Gov. Julius P. Heil.

### South Carolina Receipts Up

COLUMBIA, S. C., June 12.—Rising 10.2 per cent above May, 1938, collections, gasoline tax collections in South Carolina totaled $1,056,534 in May this year, tax officials report. The state's tax is 6-cents per gallon.

# Court Enjoins Oil Law Order In East Texas

(*Continued from page 9*)

ion said the plaintiff had not attacked the validity of the order but the manner in which the order had been enforced and had argued that it was "discriminatory". He also said that the evidence showed without contradiction the methods of applying and enforcing the order had been very different from its wording.

Judge McMillan analyzed the way in which the order was enforced pointing out that wells whose hourly potential ranged anywhere from one barrel to 860 barrels per hour were allowed to produce a full 20 barrels of oil daily, wells having an hourly potential of about 865 to 1100 barrels an hour were allowed to produce the number of barrels which equaled the product of its hourly potential multiplied by 2.23 per cent.

"In practical operation," the court said, "the daily allowable of no well was controlled by the factor of its hourly potential unless such well had a potential of 865 barrels or more per hour it is manifest that the way in which the Commission interpreted, applied and enforced this order is entirely different from the order. The gravamen of the complaint lies in its assertion, that the Commission does not allocate the allowed production among the various producers on a reasonable basis."

It can be seen from the Court's analysis that a producer that had a well with a high hourly potential would get, under the order, only a very few more barrels a day than the producer who had a well that could just make its 20 barrels a day.

The judge also asserted that "the proration of this field on a per well basis has been considered and condemned in a number of cases before this, the disregard of acreage alone should be sufficient to condemn the plan."

The plea of the Commission that the situation in East Texas is difficult and no better order can be written does not, the court said, justify "confiscation."

"The difficulty in which the Commission finds itself," Judge McMillan said, "grows largely out of its relaxation of its own well spacing rules. The drilling of thousands of wells, unnecessary so far as the public interest is concerned, has required them to listen to the demands of those well owners at the expense of other operators, better situated. No effort has apparently been made to require those parties producing upon densely drilled acreage to pool their tracts. There is no justification in law for taking complainant's property in order to recoup these parties who drilled those unnecessary wells."

It will be recalled that Rowan & Nichols Co. in its suit, had asserted it owns 24.99 acre lease in Gregg County, on which it has five wells, with allowable of each well a little more than 22 barrels daily. An operator immediately south of that lease, it was contended, had a well on approximately one-tenth acre and his well was permitted to produce 22.272 barrels, "which is as much," the petition stated "as complainant is permitted to produce from any of its five wells, although complainant's lease comprises 25 acres, or one well to each five acres and the amount of recoverable oil per acre under said two tracts is approximately the same, thereby the other operator is permitted, by the order of the Commission, to take complainant's oil."

Commissioner Jerry Sadler announced at the statewide proration hearing that the decision would be appealed. He said he believed the order had struck down the whole East Texas order. Col. E. O. Thompson, Commission member, said the decision had merely struck down the "plan" of the order. "The court said," Thompson added, "we have given poorer wells practically the same allowable as better wells and that that was not a fair distribution of production."

### Broker Loses $2,100,000 Suit

HOUSTON, Tex., June 9.— Suit for $2,100,000 commission on the sale of the Yount-Lee Oil Co. properties to the Stanolind Oil & Gas Co. was lost here by H. B. Cantey, Dallas and Jamaica, N. Y., oil broker when a district judge granted a motion for an instructed verdict. Cantey has testified it was through his efforts the sale was effected in 1934.

### Texas Probes 'Gas' Tax Leaks

AUSTIN, Tex., June 9. — An interim committee to investigate revenue losses and particularly the reported increase in gasoline tax refunds has been authorized by the Texas House.

The comptroller had reported that last year $6,800,000 was refunded on 187,000 claims, while this year indications are total claims will reach 210,000.

# Illinois Crude is Cut 10c, 'Local Conditions' Blamed

N. P. N. News Bureau

CLEVELAND, June 12. — "Cut-price" sales of between 40,000 and 50,000 barrels of Illinois crude daily, approximately one-fifth of the production from the state's newer fields, was blamed by the Sohio Corp., crude purchasing subsidiary of Standard Oil Co. of Ohio, for a 10-cent reduction to $1.05 per barrel in its posted price for Illinois Basin crude. It was emphasized that the cut was due to "local conditions."

The Sohio Corp.'s reduced posting was effective June 8 and by the end of the past week, other leading purchasers of Illinois oil had lowered their postings and the downward swing in prices had spread to the nearby Kentucky fields.

On June 9, The Ohio Oil Co. announced a 10-cent cut in its postings which was made, the company said, "to meet the competitive situation existing in Illinois," Ohio Oil's new postings, retroactive to June 8, were: Illinois (old fields) and western Indiana (Princeton), $0.95 per barrel; Illinois Basin (new fields), $1.05 per barrel.

Carter Oil Co., crude purchasing subsidiary of Standard Oil Co. of New Jersey, reduced its posting for Louden, Ill. oil 10 cents to new price of $1.05 per barrel, effective June 10.

Effective June 9, Fordsville Gathering Lines, Inc., another crude purchasing subsidiary of Ohio Standard, reduced its posted prices for western Kentucky crude by 10 cents per barrel to $0.90 for Birk City oil and $1.00 for Owensboro and all other Kentucky crudes where this company posts a price. This cut, too, was blamed on "local conditions" and not the general situation in the industry.

Ashland Oil & Transportation Co. effective June 9 reduced prices it will pay for Somerset (Ky.) crude 10 cents per barrel, to $1.10 for Kentucky river production and $1.02 for Big Sandy River production, according to a company announcement.

Stoll Oil Refining Co. announced a 10-cent cut to $0.90 per barrel, effective June 10, in the price it will pay for Kentucky crude in its lines.

In a statement announcing its Illinois price reduction, The Sohio Corp. emphasized that it was due to "local conditions" in Illinois. Text of the Sohio statement follows:

"Due solely to local conditions, Sohio Corporation is reducing its regular posted price for Illinois Basin crude oil from $1.15 to $1.05 per barrel, effective 7 a.m. June 8, 1939.

"This reduction is made in view of the increasing quantity of Illinois production which is being sold at cut prices ranging from 75 cents to 90 cents per barrel, with some sales reported as low as 70 cents per barrel.

"Such sales at cut prices now appear to be running between 40,000 and 50,000 barrels per day. This quantity has been rapidly increasing, accompanying the rapid increase in drilling.

"Last October at the time the Mid-Continent crude price was reduced 20 cents per barrel, the Sohio Corp. reduced its price on Illinois Basin crude only 10 cents per barrel and this level has been maintained since then in the hope that the quantity of the oil moving at cut prices would tend to diminish.

"So far as we can ascertain, Sohio Corp. and The Ohio Oil Co. are practically the only buyers, other than producers paying for royalty oil, which are or have been paying the posted price for Illinois Basin crude. In brief this price reduction is forced by local competition and local overproduction."

Since the first of this year, Illinois crude production has jumped from 137,000 barrels daily to 220,000 barrels. Prediction that output would reach 300,000 barrels daily by the end of 1939 was made by Dr. M. M. Leighton, head of the Illinois Geological survey at the recent annual meeting of Illinois-Indiana Petroleum Ass'n. at Robinson, Ill. Six individual estimates by independent producers and major company representatives at the same meeting placed the year-end production figure at between 280,000 and 325,000 barrels daily.

That the cut in Illinois crude prices did not come as a surprise to some oil men is indicated by the remarks of Paul Blazer, Ashland Oil & Refining Co. president, to the Independent Petroleum Ass'n. of America at its meeting in Dallas June 6. Blazer said that in his opinion a crisis would be reached in Illinois within the next two or three weeks which would result in a reduction in the posted price for crude in that area.

# Southwest Examines Its Fences For Effect of Illinois Crude Cut

By ALLEN S. JAMES

N. P. N. News Bureau

TULSA, June 12.—Arrival of the Illinois crude oil price cut that many oil men had feared for several days was on its way has caused the Mid-Continent operators to examine their fences closely for vulnerable spots that might invite a spread of the Illinois Basin area situation to southwestern fields.

This examination disclosed that Kansas and Oklahoma apparently are in a reasonably good statistical position in that most everyone is taking his allowable and there apparently is no sizeable amount of distress oil in those two states at the present time. There still is some pipeline proration in the stripper well areas of southern Oklahoma but that seems to be one of the conditions that just cannot be ironed out right now, particularly in view of the fact that crude is not as desirable as crude just as easily obtainable in adjacent territories.

The Rock Island Refining Co., one of the purchasers in southern Oklahoma, announced a three-cent per barrel increase in its schedule, placing it on a parity with the North Texas schedule but still 7 cents under the price posted by the larger purchasers in the area.

There is a touchy spot in New Mexico where the allowable in one district is about four or five thousand barrels a day above the pipeline takings from the field but it is not generally believed that situation, due to its comparative remoteness from the other Mid-Continent areas, can cause much disturbance.

East Texas, North Louisiana and South Arkansas are not faring so well right now, according to reports here. At the present time there is said to be 5000 to 6000 barrels of East Texas crude a day that would like to find a permanent home. This semi-distress crude is the result of some shifts in pipeline takings. One company having a refinery in East Texas which has been shut down is reported to be considering reopening the plant to run the 1000 barrels a day of crude the company has had drop back in its lap in recent weeks.

The tanker strike has slowed down movement of East Texas crude to the Gulf to some extent, it was said, and one or two companies are finding themselves with a little more oil on the Gulf coast than they want right now.

One producing-pipeline company is reported to have contracted to sell a major company approximately 500,000 barrels of East Texas crude at a price reported to be $1.19 a barrel f.o.b. tanker, which is 10 cents under the market. The company is reported to have made delivery of 90,000 barrels on this deal.

There also is a persistent report that this same company has virtually concluded a deal whereby it obtains a half interest in a Gulf coast refinery and that the plant will be used to process the crude which the company is producing in two Texas fields but for which it has been unable to find a steady market.

If this deal is concluded it probably will mean that one or two Louisiana Gulf coast fields will have some distress oil since the refinery previously referred to has been getting a good portion of its crude supply from that territory.

There also is an unconfirmed report that the producing-pipeline company referred to has made a deal to acquire a shutdown plant in the East Texas field and may dismantle it and move it to the site of the Gulf coast plant, thereby increasing crude throughput capacity on the Gulf coast.

A pipeline company operating in the Rodessa area is reported to have about 5000 barrels daily of crude now for which it has no market. It has been moving the surplus to East Texas tankage and now has about 125,000 barrels in storage there. Another pipeline company in north Louisiana is reported to be enforcing a small amount of pipeline proration at the present time.

The Sinclair Prairie Oil Co.'s spur line from the KMA field in north Texas to its trunk line to the Gulf coast is reported in operation now and the KMA field accordingly is getting along reasonably well.

Despite these few soft spots, say many operators, the southwest would be getting along pretty well for this season of the year if it were not for that Illinois situation.

Several large crude oil purchasers have reported that there is a lot of Illinois crude being offered them, by both majors and independents, on favorable bases.

Many operators now believe that a production race is inevitable in Illinois.

The Texas Empire Pipe Line Co. is reported buying right of way for a 10-inch pipeline from the Salem-Centralia field, where The Texas Co. is the major operator, to the Heyworth station on the Texas-Empire's trunk line to the Chicago refining district. This line would be approximately 120 miles in length and would pass close to the Louden field.

This line undoubtedly will be rushed to completion, and would give the Texas company two outlet lines from the Illinois area. And when the second line is completed it probably will be able to move some 30,000 barrels or more of oil daily.

The western section of the Socony-Vacuum Oil Corp.'s line through Illinois is expected to be completed about July 1, and some observers think the Magnolia Petroleum Co. will then begin moving as much crude as possible through that line to Wood River and vicinity, the amount of oil moved being dependent to a large measure on the storage available.

Then the Standard Oil Co. of Ohio is reported building a short 10-inch line to serve the eastern side of the area.

When these lines are completed, say observers, the outlet facilities will have been increased by almost 100,000 barrels daily, if the fields can make that increase by the time the lines are put in operation.

When the lines are completed they will give the major operators in the Illinois area an opportunity to move all their production and they accordingly will be in a position to flow wide open their offset wells to the many church lot and cemetery locations where independent operators have been producing their wells to capacity.

And while all this oil is flowing from Illinois, Mid-Continent operators are continuing their attempts to foresee what will be the effect on them.

The major operators in Illinois, say some observers, may hesitate to lower price schedules in other fields in which they operate and where conservation has been practiced. On the other hand, however, it is kept in mind that such large operators as Sinclair Prairie Oil Co., Phillips Petroleum Co., Standard Oil Co. of Indiana and the Gulf Oil Corp., are not in the Illinois area but are heavy purchasers and producers in the Mid-Continent areas.

The refined products made from all that lower-priced Illinois oil is likely to be offered in competition with their products, it is pointed out, and there are some who doubt these companies will accept for very long that differential against them as to cost and transportation of raw materials without doing something about it.

On the other hand the recent reduction in Illinois crude, say some observers, may "shake the boys up enough in that area" that production rate will be curtailed, and the anticipated heavy consumption this summer may enable the Mid-Continent to ride through the crisis.

## FDR Will Ask Congress To Extend Oil Compact

N. P. N. News Bureau

WASHINGTON, June 12. — President Roosevelt is expected to send a message to Congress this week recommending extension of Congressional authority for the Interstate Oil Compact. Col. Ernest O. Thompson, chairman of the Compact Commission, together with other members of the commission, as well as Senators and representatives from oil producing states, called at the White House a few weeks ago (NPN, May 31, p. 18), to submit a formal request for continuation of the compact, and the President is expected to act favorably.

### Oil Compact Meeting Set For July 19-20 At Santa Fe

N. P. N. News Bureau

TULSA, June 12.—Chairman Ernest O. Thompson of the Interstate Oil & Gas Compact Commission has announced that the next quarterly meeting of that group will be held July 19 and 20 at Santa Fe, N. Mex.

### Michigan Proration Rules Approved by Commission

LANSING, June 12. — The Michigan Conservation Commission gave final approval late last week to a series of regulatory measures on drilling, well-spacing, transfer permits, surety bonds and waste preventive methods as embodied in "Proposed General Rules and Regulations Governing Oil and Gas Operations in the State of Michigan".

# Oil Men Hope for The Best With their Fingers Crossed

DALLAS, Tex., June 7.—Independent oil men are hoping for the best but fearing the worst this summer because of Illinois, if informal discussions among those here to attend the special meeting of the Independent Petroleum Assn. of America is a criterion of their real feelings.

Many of them have abandoned any hope of Illinois enacting a conservation law soon and some, accordingly, are inclined to appeal to the federal government for aid. The federal-aid operators, however, apparently are well in the minority, perhaps because a goodly number of those at the meeting here June 6 were Texans who are noted for their stand against anything impinging on states' rights.

Some of the operators apparently are reconciled to a rather "thin" summer, believing that the Mid-Continent is going to have to curtail output and "grin and bear it" while Illinois has its fling. The one big hope these operators see is that the situation in Illinois will remain localized and any price cuts will not spread to the Mid-Continent. If the situation can be kept localized, and the new fields are "gutted" as rapidly as is now the indication, they think the major portion of the crisis will have been passed by the end of the summer, and the pressure will be considerably lighter when the fall and winter months get here.

There are some operators who cannot see any ray of hope for the summer months. Price cuts in Illinois, they think, will affect Mid-Continent prices. They point out that while a number of large purchasers of crude in the Mid-Continent are not in Illinois, they market their refined products in the middle west in competition with other large companies having Illinois oil. Refiners operating on Mid-Continent crude, they believe, will not let competition from refined products made from Illinois crude get too far out of line without doing something about the price they pay for their raw material.

# Price-Cutter and Lower-Cost Hauling Are Correcting Situation, Says Blazer

DALLAS, Tex., June 8.—A refiner's viewpoint of the Illinois production situation and its economic effect on the refining industry in the adjacent central states area was given by President Paul Blazer of the Ashland Refining Co., Ashland, Ky., to members of the Independent Petroleum Assn. of America here June 6.

President Blazer told I.P.A.A. members he had come down to Dallas to urge them to oppose pipeline and marketing divorcement legislation now before Congress because he believed such legislation was dangerous. Before he had completed his talk he had painted for his audience a vivid picture of the Illinois situation.

Mr. Blazer said that he did not believe the Illinois crude oil market would hold another two weeks because of the large amount of under-the-market oil being moved from the field. (A 10 cents a barrel cut in Illinois Basin crude was announced the next day (June 7) by the Standard Oil Co. of Ohio, effective June 8.)

One company having a refinery in Kentucky, Mr. Blazer said, was planning to take Illinois crude to that plant despite the fact the refinery was completely surrounded with nearby oil wells. He said that in his case he was paying $1.225 cents a barrel for western Kentucky crude, laid down at his refinery, yet he could buy 10,000 barrels daily of Illinois crude at 70 to 75 cents a barrel, and that by barging it part of the way could get it delivered to the plant at 86 cents a barrel. "And that Illinois oil is about 10 cents a barrel better crude than the Kentucky oil," Mr. Blazer added.

He estimated that it was costing him 50 cents a barrel, or $500 a day, to continue to take 1000 barrels of western Kentucky oil, and that in self defense the price of Kentucky crude would have to be cut if the Illinois price was lowered.

Swinging around to the matter of pipeline divorcement Mr. Blazer said that he did not think that type of legislation would benefit the independent producers but might do them considerable harm. He said the place to get help was through a reduction in pipeline rates, which he believed were too high.

Discussing the proposed divorcement of marketing Mr. Blazer said that "none of us like the so-called price-cutters, but they are, nevertheless, correcting the situation," by making the majors face the fact that they are going to have to discard many of their large collection of service stations and concentrate on volume through fewer stations.

One of the troubles with marketing now, Mr. Blazer added, was the fact that it is trying to ship on rail rates which have no justification. He said that it formerly cost his company 1.4 cents a gallon to move gasoline to a certain city by rail but that the cost is now 0.14 cent a gallon because barge transportation is being used.

"We are saving $40,000 to $50,000 a month on low-cost methods of transportation," Mr. Blazer added.

As a parting word, Mr. Blazer told the I.P.A.A. members that the real trouble in Illinois comes from Texas, because a lot of Texans from East Texas moved up there and got busy when the new play was discovered.

### Canada 'Gas' Demand Up

OTTAWA, June 12.—An increase of 4,603,000 Imperial gallons, or 6.71 per cent, in gasoline consumption in Canada was reported for the two months ended February, over the corresponding period of last year, according to the Dominion Bureau of Statistics. Consumption for the two months this year was 73,157,000 Imperial gallons.

# I.P.A.A. Votes To Defer Stand On Oil Control

**By Staff Writer**

DALLAS, Tex., June 7.—Opposition to legislative proposals to divorce pipeline and marketing operations from the rest of the oil industry was voted by members of the Independent Petroleum Ass'n. of America at a special meeting here June 6.

This stand was taken with adoption of recommendations on this point by the Committee of 36, a special study committee named to study several controversial proposals which were offered as resolutions at the I.P.A.A. annual meeting last October. A preliminary report* was made to the executive committee at Fort Worth in December, then the study committee here June 5 to draft the final report for submission to the more than 200 members attending the June 6 meeting.

Besides voting to oppose divorcement legislation, the I.P.A.A. membership put off until the next annual meeting any action on the proposal that Congress be asked to enact a law providing for federal allocation of crude oil production among the states, with an umpire to enforce such allocations.

Decision to delay action on the federal allocations proposal came only after a heated debate, during which a proposed oil bill, drafted by the late Amos L. Beaty, was discussed at considerable length. The bill embodies most of the ideas contained

*N.P.N., Dec. 21, 1938, P. 18.

### Independent Producers Plan 'Biggest Meeting'

FORT WORTH, Tex., June 7.—Members of the general arrangements committee for the tenth annual meeting of the Independent Petroleum Assn. of America met here today with that organization's executive staff and made final plans for what they say will be the best meeting in the association's history.

J. E. Farrell of Fort Worth is chairman of the general committee. He has named the following chairmen of subcommittees:

Marshall Young, attendance; W. A. Moncried, reception; E. A. Landreth, finance; J. Robey Penn, exhibits; K. L. Wickett, transportation; William Flemming, hotel reservation; W. L. Stewart, program; George Hill, decorations; John W. Herbert, entertainment, and A. H. Rowan, publicity and information.

Various civic and private organizations and companies have asked the committee for suggestions as to any help they can give to make the meeting, which also will honor President Charles F. Roeser of Fort Worth, an outstanding success.

in the "Quotas in Commerce" theory Judge Beaty developed several years ago.

Wirt Franklin, former president of the I.P.A.A., and chairman of the study committee, led the fight for approval of the proposed allocations-umpire plan, once the question was raised at the meeting.

Mr. Franklin, as chairman of the committee, had read the final report and moved its unanimous adoption.

Before a vote was taken, however, motion to recess for noon luncheon was carried and when the members reconvened for the afternoon session an amendment was made from the floor to change the committee's report to one of approval of the bill. The discussion over this amendment opened the door for both the proponents and the opponents and the debate was on.

The three-hour argument finally was halted when Frank Buttram of Oklahoma City offered a motion to table until a later date the proposed amendment. This motion was carried and then the membership voted unanimously to adopt the report of the special study committee.

Most of the opponents of the so-called Beaty bill apparently saw in it a measure of federal control of which they said very definitely they did not want. Mr. Franklin sought repeatedly to point out that in his mind there was no measure of federal control involved.

Among other issues presented to the I.P.A.A. study committee were the questions of recommended shutdown in all oil-producing states having regulatory bodies, and the inclusion of refinery regulation in the Interstate Oil Compact.

The study committee reported it did not believe there was any immediate necessity for and doubtful legal basis on which shutdowns could be accomplished.

The committee's recommendation regarding refinery regulation was that "it is possible for refinery operations as well as production operations to be provided for under the provisions of the Interstate Oil Compact, enabling refiners to work with and through the Interstate Oil Compact Commission in such states where this Interstate Compact is operating."

At the December meeting of the study committee recommendation was made that a committee be appointed to undertake certain objectives, among them the effort to expedite approval by the Federal Trade Commission of the voluntary oil marketing code, to ascertain the cost of a study of the problems of the oil industry from the refinery to the consumer in the refining and marketing branches of the industry and to determine the effect of these practices on the producing branch of the oil industry; and to ascertain whether or not it is lawful and feasible to undertake to have the Securities and Exchange Commission to require all integrated companies listed to make annual statements of the result of their financial operations in the four branches of such integrated companies.

Russell B. Brown, counsel for the association, reported on progress made by this committee in these matters.

He said that the committee had experienced some difficulty in getting action from the Federal Trade Commission but now he believed that within two weeks a modified code would be presented for the industry's consideration.

He said that the Brookings Institute had been contacted relative to the marketing survey but that it was hinted "about a million dollar endowment" would be expected, but that the Harvard University research group had indicated the survey would cost about $12,000 and require about six months time.

### C.I.O. Wins at Salt Creek

N. P. N. News Bureau

WASHINGTON, June 12. — Oil Workers International Union has been certified by the National Labor Relations Board as the sole bargaining agency of production employes of Continental Oil Co. at Salt Creek Field, Columbine, Wyo.

### Oil Field Pumper Lives With Steel Chip in Heart

WICHITA FALLS, Tex., June 8. — Ben Marshall, 53-year-old oil field pumper, has been dismissed from a hospital here and told he was "as good as new" despite the fact he has a steel chip lodged in his heart.

Marshall entered the hospital because he "felt sick" from the effects of a steel chip flying from the head of a hammer he was using on a steel drum. The chip had cut through his clothing and penetrated his left side. An X-ray revealed the chip, about the size of a .22 caliber bullet, embedded in his heart. Marshall was advised by doctors to "take it easy" a few days to let his heart get adjusted to the chip.

# Crude Stocks Trend is Up, Report by I.P.A.A. Shows

DALLAS, Tex., June 7.—Developments in the statistical picture of the oil industry during the second quarter of 1939 have been unfavorable, the committee on balance of supply with demand of the Independent Petroleum Assn. of America reported here June 6 to the executive committee.

Trend of crude production, the committee reported, has been strongly upward with the result that additions have been made to crude storage. Large refinery runs have absorbed large quantities of crude that would have gone into crude storage had refinery operations been at lower or more reasonable level. "This has had the effect," the committee reported, "of preventing the liquidation of the excessive gasoline stocks."

The trend of crude oil production during 1939, the committee stated, has steadily increased at a rate exceeding the estimates of demand by the Bureau of Mines by almost 82,000 barrels per day, or about 2.5 per cent.

The committee pointed out that while crude stocks on April 30 this year were 28,279,000 barrels lower than at the same time last year, the reduction occurred during the last eight months of 1938 and there has been a tendency to increase stocks during the current year.

In the accompanying table, is shown the changes in crude oil stocks by grades from Dec. 10, 1938, when stocks reached their lowest level, to May 20, 1939. As shown by the table, stocks increased during that period 8,359,000 barrels or approximately 52,000 barrels per day.

An extremely large demand for gasoline has offset, to some extent, the results of increased refinery operations, the committee reported. It estimated a total gasoline stock level of 62,000,000 on Sept. 30, 1939, is necessary if the industry is to enter the period of lower consumption without excessive gasoline inventories.

"Taking into consideration the factors affecting the demand for crude oil," the committee report stated, "the following estimates have been prepared of consumptive demand during June-September, inclusive:

"Total United States ..... 3,490,000 bbls. daily
"East of California ..... 2,900,000 bbls. daily

"As the above figures represent consumptive demand, they do not provide for any reduction in crude oil stocks. A production rate of 2,800,000 barrels daily east of California would provide for a reduction of 12,200,000 barrels in crude oil stocks during the four-month period."

The committee noted an "alarming tendency" for imports of crude oil to increase during the past two months. "Imports during the first three months of 1939 were at relatively low levels," the committee stated, "but a substantial increase took place in April and a further increase in May. During the latter month it is estimated that approximately 220,000 barrels daily of foreign oil was brought in. This is the highest average at any time within the last two years. This tendency is of particular significance in view of the present difficulties of controlling domestic supply in balance with demand."

### Change in Crude Stocks by Area of Origin From Lowest Level on Dec. 10, 1938, to May 20, 1939

*(Figures in thousands of barrels)*

| Grade or Origin | Stocks on Dec. 10, 1938 | Stocks on May 20, 1939 | Increase or Decrease Total | Daily Av. | Per cent |
|---|---|---|---|---|---|
| Pennsylvania grade | 5,914 | 5,675 | — 239 | — 1.5 | — 4.0 |
| Other Appalachian | 1,299 | 1,182 | — 117 | — 0.7 | — 9.0 |
| Lima-Michigan | 1,265 | 2,050 | + 785 | + 4.9 | +62.1 |
| Illinois-S. W. Ind. | 11,376 | 13,060 | +1,684 | +10.5 | +14.8 |
| Arkansas | 2,960 | 3,156 | + 196 | + 1.2 | + 6.8 |
| Kansas | 6,472 | 7,416 | + 944 | + 5.9 | +14.6 |
| Louisiana | 13,944 | 14,061 | + 117 | + 0.7 | + 0.8 |
| New Mexico | 7,133 | 3,528 | — 605 | — 3.8 | — 8.5 |
| Oklahoma | 71,415 | 69,611 | —1,804 | —11.2 | — 2.5 |
| Texas | 88,641 | 90,558 | +1,917 | +11.9 | + 2.2 |
| Rocky Mountain | 20,482 | 20,409 | — 73 | — 0.4 | — 0.4 |
| California | 35,077 | 39,739 | +4,662 | +28.9 | +13.3 |
| Foreign | 2,731 | 3,623 | + 892 | + 5.5 | +32.1 |
| Total U. S. | 268,709 | 277,068 | +8,359 | 51.9 | 3.0 |
| East of California | 233,632 | 237,329 | 3,697 | 23.0 | 1.0 |

# Gasoline Demand Climbs 2% In April, Despite Weather

N. P. N. News Bureau

WASHINGTON, June 12. — Domestic gasoline demand in April was 723,000 barrels greater than in April, 1938, but the Bureau of Mines called the increase "disappointing" because it did not measure up to its forecast. Adverse weather conditions in April were blamed for the increased demand not being larger than two per cent above last year.

The Bureau reported domestic gasoline demand in April was 43,977,000 barrels, as compared with its forecast of 46,300,000 barrels.

Demand for the first four months of 1939 totaled 158,859,000 barrels as compared with 151,550,000 barrels for the same period last year and 149,666,000 barrels in 1937.

Motor fuel exports also failed to meet expectations, the total of 3,663,000 barrels being nearly 20 per cent under last April and about 640,000 barrels under the forecast.

Demand for fuels, including coke and still gas, continued to run ahead of last year.

Distillate and gas oil demand in April was 10,047,000 barrels, compared with 7,800,000 barrels a year previous. Residual fuel oil demand was 24,806,000 barrels compared with 22,279,000 barrels a year ago. Kerosine demand was 5,042,000 barrels, compared with 4,333,000 barrels last year.

Daily average production of crude oil was 3,517,000 barrels, the highest since October 1937. April average was 72,000 barrels higher than in March and 93,600 barrels above that of April 1938. The output increase is mostly traceable to the abandonment of the Saturday shutdown in Texas, the Bureau says, but the Texas daily average increased only about 5 per cent rather than the theoretical 17 or 18 per cent. Gains were recorded in Louisiana, Illinois and Michigan, but most of the other states declined.

Daily average crude runs to stills in April were 3,310,000 barrels, which was 119,000 barrels over the March average and 121,000 barrels over the April 1938 average. Finished gasoline stocks on April 30 were 81,623,000 barrels.

Natural gasoline production increased also, the daily average of 5,925,000 gallons being almost 200,000 gallons above March and also 100,000 gallons above April last year. The chief gains were in East Texas, Texas Gulf and Panhandle districts.

## Dutch West Indies Ship 14,286,442 Bbls.

WASHINGTON, June 9.—Exports of all petroleum from Curacao and Aruba in the Dutch West Indies totaled 14,286,442 barrels in March, 1939, slightly more than 200 complete cargoes, if figured on the basis of 70,000 barrels for each cargo, according to a report from government sources.

Exports from Curacao totaled 6,330,471 barrels, the report shows. Of this, 3,359,693 barrels were fuel oil; 1,580,399 barrels, gasoline; 377,205 barrels, diesel fuel; 322,540 barrels, gas oil; 524,219 barrels, crude oil; 103,422 barrels, lubricating oil; and 63,083 barrels, kerosine.

Shipments from Aruba totaled 7,955,971 barrels, broken down into 4,411,211 barrels of fuel oil; 1,763,724 barrels of gasoline; 958,449, diesel fuel; 528,245, gas oil; 294,251, kerosine, and 91 barrels of lubricating oil.

**January-April Demand for Petroleum Products As Compared with Same Period Last Year**

*(Figures in thousands of barrels)*

| DEMAND: | April 1939 | March 1939 | April 1938 | January–April 1939 | January–April 1938 |
|---|---|---|---|---|---|
| Total demand | 110,060 | 115,170 | 107,298 | 436,734 | 415,894 |
| Daily average | 3,669 | 3,715 | 3,577 | 3,639 | 3,466 |
| Exports: | | | | | |
| Crude petroleum | 6,222 | 4,966 | 7,553 | 20,475 | 24,955 |
| Refined products | 9,222 | 10,849 | 10,427 | 35,900 | 36,224 |
| Domestic demand: | | | | | |
| Motor fuel | 43,977 | 42,520 | 43,254 | 158,859 | 151,550 |
| Kerosene | 5,042 | 5,201 | 4,333 | 22,124 | 19,860 |
| Gas oil and dist. fuels | 10,047 | 12,304 | 7,800 | 51,790 | 42,580 |
| Residual fuel oils | 24,806 | 28,071 | 22,279 | 106,375 | 97,446 |
| Lubricants | 1,791 | 1,987 | 1,591 | 7,040 | 6,568 |
| Wax | 52 | 73 | 101 | 296 | 388 |
| Coke | 394 | 646 | 313 | 2,175 | 1,572 |
| Asphalt | 1,840 | 1,269 | 1,654 | 5,003 | 5,058 |
| Road oil | 267 | 228 | 208 | 848 | 658 |
| Still gas | 5,386 | 5,376 | 5,073 | 20,472 | 19,339 |
| Miscellaneous | 181 | 187 | 166 | 694 | 572 |
| Losses | 833 | 1,493 | 2,546 | 4,683 | 9,124 |
| Total domestic demand | 94,616 | 99,355 | 89,318 | 380,359 | 354,715 |
| Daily average | 3,154 | 3,205 | 2,977 | 3,170 | 2,956 |

## Chicago 'Gas' Jobbers Organize Association

N. P. N. News Bureau

CHICAGO, June 12.—The recently formed Chicago Gasoline Jobbers Ass'n. moved into its new headquarters at 616 S. Michigan Ave. today.

1—To promote the mutual interests of its members.

2—To establish and maintain uniformity in trade usage and practices.

3—To avoid unfair and discriminatory trade methods.

4—To employ all lawful means to promote the welfare of the industry.

Directors chosen at a meeting early this month are: O. L. Peterson, George C. Peterson Co., president; Harry L. Beck, Friend & Beck Co., Inc., vice-president; Donald F. Cameron, Chicago Motor Club, secretary; James L. McManus, Frank F. Fulton Co., Inc., treasurer; J. Sanburg, Northwestern Gas & Oil Co.; Sam Ehrlich, National Gas & Oil Co.; J. L. Stone, Bulk Service Stations; E. L. Bruun, Thornton & Bruun Oil Co.; Martin Fleming, Union Central Petroleum Co.; and Sam Levine, Empire Gas & Oil Co.

# Runs to Stills Break Record

NEW YORK, June 13.—Crude runs to stills at U. S. refineries touched an all-time high in the week ended June 10, when daily throughput reached 3,510,000 barrels, according to a report on refinery operations compiled by the American Petroleum Institute. Plants reporting to the Institute operated at 86.5 per cent of capacity, compared with 84.2 per cent the previous week.

Despite the record-high crude runs, gasoline stocks dropped 921,000 barrels during the week. All districts in the country contributed to the drop in gasoline inventory, with the exception of Texas-Gulf where stocks increased 175,000 barrels.

In reaching their new high, crude runs increased 95,000 barrels on daily average for the country as a whole. Refineries in Indiana, Illinois and Kentucky district increased runs 30,000 barrels on daily average, while Texas Gulf plants ran 35,000 barrels more crude daily during the week.

Stocks of gas oil and distillate at U. S. refineries increased 980,000 barrels during the week.

JEFFERSON CITY, Mo.—Receipts from the gasoline tax in Missouri totaled $4,924,319.27 for the first five months of this year, compared with $4,704,270.98 for the corresponding period of last year, a gain of 4.7 per cent.

# Liquid Coal (60% Range Oil) Runs Car After Engine Warms Up with Gasoline

N. P. N. News Bureau

CHICAGO, June 12.—A new automotive fuel in the form of "liquid coal" proved successful here last week in an experiment conducted by Dr. Francis W. Godwin, director of coal research at the Armour Institute of Technology Research Foundation.

Several distinguished scientists and coal merchants attending their national convention here watched Dr. Godwin's experiment as he warmed up the motor of a 1939 stock model car with gasoline, then shut off the gas and pressed a button permitting the inflow of the "colloidal fuel" into the carburetor from an auxiliary tank. He drove off and attained normal driving speed within a block.

The new fuel is a combination of 500 mesh coal and hydrocarbon fraction mixed with 60 per cent light range oil. The fuel costs about 10 cents a gallon and gives about the same mileage as gasoline, it is claimed.

Processing costs are much less than those of gasoline manufacture and appreciable savings would be shown should the fuel be produced in volume, it was said.

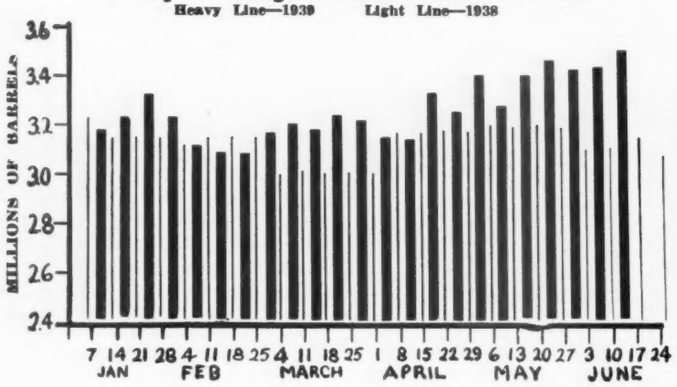
"While liquid coal is not yet ready for commercial use in automobiles, the possibilities as shown by the experiment were tremendous," according to Dr. Godwin. The heat value of the fuel per cubic foot is considerably more than that of either coal or oil, making it valuable as a quick heating economical burner fuel for commercial use, he added.

Dr. Godwin said further research is needed to perfect the fuel and to determine how to manufacture it most efficiently and inexpensively.

# Latest Oil Industry Statistics

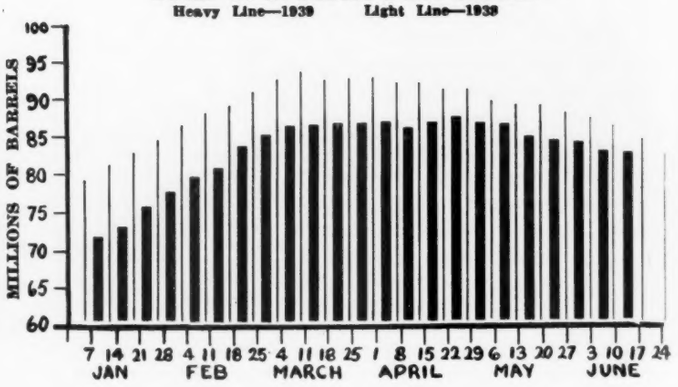
## Daily Average Crude Runs to Stills

Heavy Line—1939 Light Line—1938




## Total U. S. Motor Fuel Stocks

Heavy Line—1939 Light Line—1938




## A. P. I. Weekly Refinery Report

*(Figures in Thousands of Barrels of 42 Gallons Each)*

| Districts | Daily Average Crude to Stills Week Ended | | Per Cent of Reporting Capacity Operated Week Ended | | (a) Gasoline Production Week Ended | | Stocks Total Finished & Unfinished Motor Fuel (b) Week Ended | | Stocks of Gas Oil & Distillates At Refineries Week Ended | | At Terms. Trans. Pipelines Week Ended | | Stocks of Residual Fuel Oil At Refineries Week Ended | | At Terms. Trans. Pipelines Week Ended | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | June 10 | June 3 | June 10 | June 3 | June 10 | June 3 | June 10 | June 3 | June 10 | June 3 | June 10 | June 3 | June 10 | June 3 | June 10 | June 3 |
| East Coast | 567 | 570 | 92.2 | 92.7 | 1,440 | 1,525 | 21,614 | 21,930 | 3,355 | 2,982 | 4,705 | 3,944 | 3,631 | 3,653 | 3,615 | 2,688 |
| Appalachian | 107 | 103 | 83.6 | 80.5 | 387 | 364 | 3,370 | 3,548 | 258 | 249 | 84 | 63 | 386 | 392 | .... | .... |
| Ind., Ill., Ky. | 487 | 458 | 94.7 | 89.1 | 1,969 | 1,769 | 13,360 | 13,729 | 2,487 | 2,378 | 506 | 373 | 2,783 | 2,745 | 107 | 47 |
| Okla., Kans., Mo. | 271 | 274 | 79.2 | 80.1 | (c)990 | (c)1,007 | 7,586 | 7,656 | 1,192 | 1,133 | 43 | 40 | 2,923 | 2,952 | .... | .... |
| Inland Texas | 112 | 100 | 70.4 | 62.9 | 491 | 508 | 1,514 | 1,576 | 299 | 293 | .... | .... | 1,699 | 1,667 | .... | .... |
| Texas Gulf | 862 | 827 | 96.3 | 92.4 | 2,796 | 2,624 | 10,131 | 9,956 | 3,544 | 3,434 | 459 | 452 | 5,262 | 5,216 | 185 | 156 |
| La., Gulf | 138 | 131 | 95.2 | 90.3 | 373 | 331 | 2,478 | 2,512 | 847 | 759 | 29 | 14 | 1,466 | 1,399 | 304 | 184 |
| No. La., Ark. | 38 | 40 | 69.1 | 72.7 | 112 | 107 | 504 | 511 | 270 | 250 | 19 | 12 | 589 | 588 | .... | .... |
| Rocky Mt. | 59 | 56 | 92.2 | 87.5 | 215 | 216 | 1,719 | 1,742 | 114 | 111 | .... | .... | 573 | 562 | .... | .... |
| California | 525 | 523 | 70.5 | 70.2 | 1,466 | 1,495 | 15,410 | 15,467 | 8,806 | 8,633 | 1,690 | 1,700 | 60,696 | 60,727 | 24,760 | 24,983 |
| Total Reporting | 3,166 | 3,082 | 86.5 | 84.2 | 10,239 | 9,946 | 77,686 | 78,627 | 21,172 | (d)20,222 | 7,535 | (f)7,115 | 80,008 | 79,901 | 28,971 | (f)28,597 |
| U. S. Total (d) | 3,510 | 3,415 | | | 11,602 | 11,238 | 82,716 | 83,637 | 21,822 | 20,848 | 7,535 | (f)7,115 | 82,268 | (d)82,161 | 28,971 | (f)28,597 |
| U. S. Total 6-10-38 (d) | 3,129 | | | | 10,324 | | 85,608 | | 23,156 | | | | 111,776 | | | |

(a) Includes straight-run, cracked and natural blended.
(b) Includes stocks at refineries, in bulk-terminals, pipe lines and in transit.
(c) 12% of reporting capacity in this district did not report gasoline production.
(d) Estimated, U. S. Bureau of Mines basis.
(e) For comparability with last year these figures must be increased by stocks "At Terminals, etc." in California district.
(f) Revised.

### Trends of Basic Figures

| | June 10 | June 3 | June 10, 1938 |
|---|---|---|---|
| Crude Production (Bbls. daily) | 3,376,950 | 3,558,800 | 3,131,500 |
| Crude Imports (Bbls. daily) | 154,860 | 131,000 | 87,430 |
| Crude Runs to Stills (Bbls. daily) | 3,510,000 | 3,415,000 | 3,129,000 |
| Gasoline Stocks (Bbls. total) | 82,716,000 | 83,637,000 | 85,608,000 |
| Gas Oil & Distillate Stocks (Bbls. total) | 29,357,000 | 27,957,000† | * |
| Residual Fuel Oil Stocks (Bbls. total) | 111,239,000 | 110,758,000† | * |

*Comparable figures not available.

### Crude Oil Production for the U. S.

*(American Petroleum Institute Figures)*

| | Week Ended June 10 Barrels | June 3 Barrels | May 27 Barrels |
|---|---|---|---|
| Oklahoma | 439,250 | 445,150 | 449,750 |
| Kansas | 151,600 | 156,800 | 161,750 |
| Texas | 1,281,000 | 1,465,300 | 1,462,000 |
| Louisiana | 267,800 | 265,500 | 267,950 |
| Arkansas | 56,900 | 56,350 | 55,100 |
| Illinois | 222,200 | 217,000 | 222,300 |
| Eastern (Ill. excluded) | 95,500 | 96,300 | 99,250 |
| Michigan | 66,950 | 64,150 | 63,850 |
| Wyoming | 62,700 | 55,300 | 60,700 |
| Montana | 15,350 | 14,600 | 14,650 |
| Colorado | 3,800 | 3,800 | 3,950 |
| New Mexico | 110,800 | 110,550 | 110,500 |
| California | 603,100 | 608,000 | 613,500 |
| Total U. S. | 3,376,950 | 3,558,800 | 3,585,250 |
| Crude Imports | 154,860 | 131,000 | 174,280 |
| Total New Supply | 3,531,810 | 3,689,800 | 3,759,530 |

### Georgia Collections Up

ATLANTA, Ga., June 12. — May gasoline tax collections in Georgia amounted to $1,766,734, state Department of Revenue reports, 9.4 per cent above the sum collected during same month last year — $1,614,595. Georgia's tax is 6-cents per gallon.

### West Virginians To Meet

CHARLESTON, W. Va., June 12.—The second annual convention of the West Virginia Petroleum Assn. will be held Oct. 25 at the Hotel Daniel Boone here.

### Crude Stocks Decrease

N. P. N. News Bureau

WASHINGTON, June 12. — Stocks of crude petroleum on hand June 3 were 277,947,000 barrels, a decrease of 342,000 barrels from May 27, but still above the May 20 figure of 277,068,000 barrels, Bureau of Mines reports. Stocks on June 4 last year, nearest comparable date, were 298,803,000 barrels. Stocks by grade or origin will be found on this page.

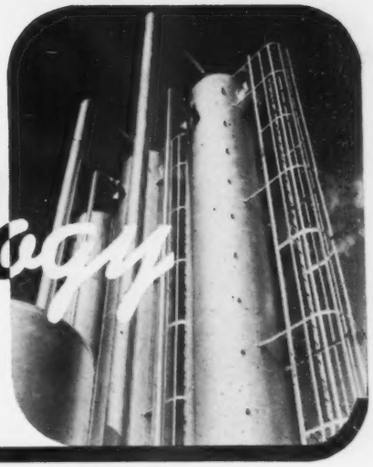
### Weekly Changes in U. S. Crude Oil Stocks*

*(Thousands of Barrels)*

| Grade or origin | May 20 | May 27 | June 3 | Chng. from May 27 |
|---|---|---|---|---|
| Pennsylvania grade | 5,675 | 5,628 | 5,649 | + 21 |
| Other Appalachian | 1,182 | 1,192 | 1,199 | + 7 |
| Lima-Michigan | 2,050 | 2,090 | 2,090 | 0 |
| Illinois-Indiana | 13,060 | 13,592 | 13,511 | — 81 |
| Arkansas | 3,156 | 3,280 | 3,431 | +151 |
| Kansas | 7,416 | 7,291 | 7,159 | —132 |
| Louisiana | 14,061 | 13,878 | 13,837 | — 41 |
| Northern | 5,931 | 5,884 | 5,825 | — 59 |
| Gulf Coast | 8,130 | 7,994 | 8,012 | + 18 |
| New Mexico | 6,528 | 6,455 | 6,455 | 0 |
| Oklahoma | 69,611 | 69,014 | 69,663 | +649 |
| Texas | 90,558 | 91,866 | 91,834 | — 32 |
| East Texas | 21,574 | 22,203 | 21,350 | —853 |
| West Texas | 15,796 | 16,277 | 16,521 | +244 |
| Gulf Coast | 21,566 | 21,685 | 21,865 | +180 |
| Other Texas | 31,622 | 31,701 | 32,098 | +397 |
| Rocky Mountain | 20,409 | 20,384 | 19,955 | —429 |
| California | 39,739 | 39,885 | 39,812 | — 73 |
| Foreign | 3,623 | 3,734 | 3,352 | —382 |
| Total U. S. refinable | 277,068 | 278,289 | 277,947 | —382 |
| Heavy in California | 14,593 | 14,604 | 14,330 | —274 |

*As compiled by U. S. Bureau of Mines.

# Refining Technology



INCLUD NG INTERNATIONAL PETROLEUM TECHNOLOGY

## Dear Reader:

Not long ago the Western Petroleum Refiners Association appointed an Octane Committee. An interesting fact about the committee is that it has two chairmen. Offhand that looks like a queer way to build a committee. But is it?

The Octane Committee has been assigned the duty of keeping a close watch on what is going on in the industry with respect to the knock rating of gasoline. The two people most affected by knock ratings are the salesmen who are out on the firing line getting the business and the men in the refinery who are trying to make a product which will sell in competition—and to make it as cheaply as possible.

So it is but natural that this Octane Committee is headed by a sales executive and by a manufacturing executive.

★ ★ ★

Manufacturing chairman of the committee is H. W. Camp, manager of the refining division of Cities Service Oil Co. of Del. Mr. Camp's friends all call him "Hy". They have been doing that affectionately for at least the past 22 years. He has been with Empire Oil & Refining Co. and Cities Service, as it is now called, since 1917. Probably he was "Hy" with the Union Oil Co. of Calif. before that, we did not know him then.

Carl Mayhall, who is co-chairman, has been managing the sale of gasoline some 22 years himself. He started out in 1917 with the Ohio Cities Gas Co., which later became the Pure Oil Co. For some years he was vice president and general manager of Imperial Refining Co. and Imperial Oil Marketing Co.

For the past 12 years Carl has been vice president in charge of sales for Anderson Prichard Oil Corp. at Oklahoma City. If anyone in the industry knows about competition for gasoline business in the Mid-Continent Carl ought to—whether it be the competition in Beaume gravity of the post war period or the more recent octane number race.

Carl has lived in Fort Worth, Tulsa and Oklahoma City for a good many years now and it would be hard to pull him away from that country. He likes the winters in the southwest because there are few week-ends when the weather is too bad to get in at least one round of golf. His offices are in one of the first buildings in the southwest to be air conditioned so the few weeks of hot weather in midsummer do not get him down.

★ ★ ★

Immediate cause of appointment of the W.P.R.A. Octane Committee was the recent move in the middle west toward adding lead to third grade gasoline and building the octane rating up to about 67. Undoubtedly, however, the committee will keep its eye on the anti-knock quality of regular gasoline also.

For the present there seems to be no cause for alarm that regular gasoline octane values will rise. At least there should be no danger as far as the present automobile is concerned.

At the recent A.P.I. meeting at New Orleans J. B. Macauley, Jr., of Chrysler Corp. donned the role of prophet and borrowed a title from H. G. Wells for his paper: "The Shape of Things to Come."

Looking backward he found an increase of 36.8 per cent in brake horsepower per cubic inch of piston displacement between 1928 and 1939. Improved breathing accounted for 14.3 per cent of the gain. The remaining 22.5 per cent came through improved combustion. This was due to a 15-octane number boost in gasoline and to better design.

Macauley told the A.P.I. that while present utilization of fuels is good, increases in octane rating above 70 do not yield comparable increases in power output. A 15 to 20 increase in octane number brings only a 5 per cent increase in output.

Looking forward the speaker found roughness as a disadvantage of increasing present compression ratios. Even with higher octane fuels to stop knocking, the roughness was not cured. Torsional crankshaft vibration increases 40 per cent between 6:1 and 8:1 compression ratios.

At 8:1 compression ratio the loss in volumetric efficiency of the motor is 4.5 per cent per ratio. In the same range there is an increase of power output of 4.5 per cent per ratio. The two cancel.

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In aviation the picture is different as will be seen from the article beginning on the next page which reports on aviation fuel symposia conducted by the S.A.E. and the A.P.I. Today we see 100 octane fuel in commercial use, fuel of higher than 100-octane is coming; 125-octane fuel has been reduced in cost from $3600 to $50 per gallon.

★ ★ ★

The oil industry was put on the pan at the recent World Automotive Engineering Congress by Arthur Nutt, vice president of Wright Aeronautical Corp. It seems that the industry hasn't improved its lubricants fast enough.

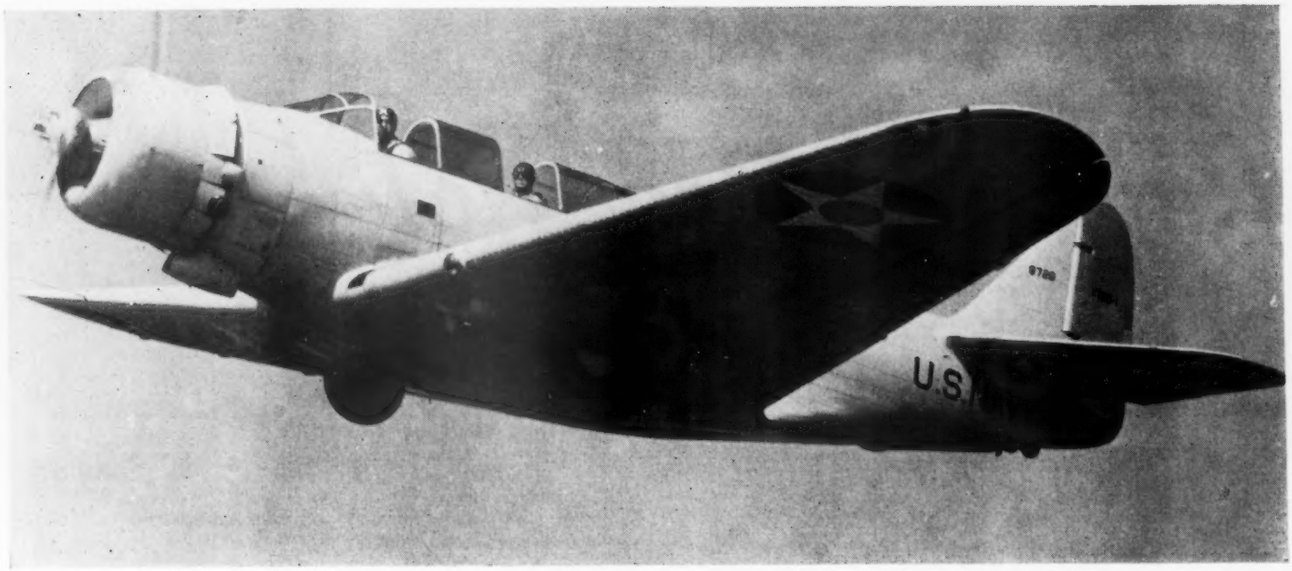
At the same time Mr. Nutt admitted that airplane wing material of double present strength is another bar in the path of progress.

In other words: "If we had some ham we could have some ham and eggs—if we had some eggs."

**Yours truly,**

**J. C. Chatfield**

Managing Editor,
Refining Technology Edition.



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# High-Octane Safety Fuel May Be Next for Aircraft Engines

By M. G. Van Voorhis
N.P.N. Staff Writer

ABSTRACT

Aircraft engineers and aircraft fuel technologists are looking forward to and developing the use of gasoline injection, high-octane safety fuel, and improved tests for anti-knock characteristics of aircraft engine fuel, it was disclosed by papers delivered at the World Automotive Engineering Congress and the American Petroleum Institute in the past few weeks. Discussion of the octane-number scale above 100 is arousing interest now that fuels of better than 100-octane number have been produced.

Multi-cylinder engines of over 2000 Hp., demanded for military purposes, as well as the possible future use of safety fuel will benefit by or require fuel injection, it is pointed out. Though coming into use in Germany, the injector has been little used elsewhere. However, the diesel fuel injector is believed to be applicable. Volatile starting fuels for safety-fuel engines might be produced as needed by tiny cracking plants carried by aircraft, it is suggested.

Present partly satisfactory knock-test methods may be replaced by a supercharged method eventually, many believe, although test procedure is more difficult. A modification of the octane-number scale is preferred by some to an arbitrary performance number for high-octane fuels. A new fuel may replace iso-octane as an upper standard.

THE price of 125-octane fuel is now down from $3600 to $50 per gallon. The Yankee Clipper with four 1500-hp. motors has crossed the Atlantic twice on 100 octane number gasoline which not so long ago cost about $25 per gallon.

Perhaps the next step may be high octane safety fuels directly injected into engines of 2000 to 5000 hp. with 24 or more cylinders.

With 100 octane number fuel now commercial and fuels of higher octane number an actuality new testing methods seem necessary. New reference fuels may be used and supercharging may be a part of the ultimate test.

The development of direct gasoline injection in aviation engines is a step in the right direction in the development of these engines, F. R. Banks, Associated Ethyl Co., Ltd., London, stated in a paper delivered before the World Automotive Engineering Congress in San Francisco, June 7. The distribution problem, particularly in the large engines of future, having 24 or more cylinders will require a solution such as fuel injection may offer.

Timed, or direct, injection of fuel into the individual cylinders will surely help towards low cruising fuel consumption, Banks said. Direct injection will also permit the use of single cylinders of full-scale engines for fuel correlation, with less chance of difference in results in full scale motors. The use of the direct injection fuel system, now in quantity production by German aero engine manufacturers, will possibly become greater in the

next few years and it may be that fuels of very much lower volatility can be used.

## Starting Easier

Starting is made easier becaus of the priming action of the injectors and the response of the engine to the throttle is immediate. The risk of damaging the engine when operating on weak mixtures is reduced and the fuel consumption should be improved by about 5 per cent at cruising powers, Banks said. A further advantage, from the military viewpoint, is in "silent approach" tactics where bombers will reach a high altitude and then glide without engine until they are over their target. The potential danger of a distribution system full of inflammable mixture at relatively high pressure, is eliminated. The question of inter-cooling is also simplified, since air only can be more easily and safely dealt with.

The principal difficulties will involve the control of the fuel and air mixture for take-off, cruising, and changing altitude conditions. A considerable amount of experimentation will be necessary to determine the correct placing of the injector in the cylinder head. The fuel should not spray on cylinder walls because excessive oil dilution and piston scuffing may occur. It has been found beneficial, in some cases, to inject from about the center of the cylinder head towards the piston crown, with a narrow spray angle.

The future development of the high-duty aviation engine will depend upon the future military requirements in the next five or ten years, Banks concluded. He said it appeared that engines of 2000 up to possibly 5000 brake horsepower will be required, and developed, during the next few years. The liquid-cooled engine will be used more generally in this range whether for military or civil aviation. Designing and building an engine to be installed within the wing still appears to be as remote a possibility as it was some years ago,

## Trick Fuels

Aviation fuels prepared particularly for record breaking liquid-cooled aviation engines of high specific power are not practical for any purpose other than that for which they were intended, in Banks' opinion. These fuels are mainly gasoline-benzol-alcohol blends plus lead tetraethyl. Alcohol is included to lower the boost temperature and thus increase the density of the charge. In other words, the fuels were designed to augment further the engine power, apart from allowing increased power by boosting, due to their high anti-knock value.

Fuel No. 1 (see Table I) was used by the winning Rolls-Royce engine in the 1929 Schneider trophy race and for the subsequent world air speed record of the same

### TABLE I
### Analysis of Special Racing Aviation Fuels

| FUEL NO. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Straight-run aviation gasoline of 74 O.N. (A.S.T.M.) per cent | .... | .... | .... | 55 | .... | .... | .... |
| Light Spirit (25°C-65°C), per cent | .... | .... | .... | .... | 20 | 20 | .... |
| Benzole, per cent | 78 | 70 | 30 | 22 | 60 | 60 | 70 |
| Methanol, per cent | .... | 10 | 60 | .... | 20 | 20 | 10 |
| Ethanol, per cent | .... | .... | .... | 23 | .... | .... | .... |
| C.P. Acetone, per cent | .... | .... | 10 | .... | .... | .... | .... |
| Light Spirit (0.680), per cent | 22 | 20 | .... | .... | .... | .... | 20 |
| ccs $PbEt_4$ per | 4 | 4 | 5 | 7 | 10 | 4 | 7 |
| Imp. & per | U.S. | U.S. | U.S. | U.S. | U.S. | U.S. | U.S. |
| U. S. gallon | (3.3) | (3.3) | (4.1) | (5.8) | (8.3) | (3.3) | (5.8) |
| Specific gravity @ 60° Fahr. | 0.8330 | 0.8285 | 0.8245 | 0.7705 | 0.8135 | 0.8135 | 0.8285 |
| Water tolerance, per cent | nil | .5 | 14.3 | 1.7 | 1.1 | 1.1 | .5 |
| Oct. No. (A.S.T.M.) | 96 | 95 | 92 | 90½ | 96 | 95 | 96 |
| Oct. No. (without lead) | 91½ | 92½ | 92 | 88 | 93 | 93 | 92½ |
| Gross calorific value B.t.u.'s/gallon | 154,472 | 146,750 | 104,580 | 139,777 | 137,120 | 137,120 | 146,750 |
| Ditto B.t.u.'s/lb. | 18,550 | 17,710 | 12,685 | 18,140 | 16,860 | 16,860 | 17,710 |
| Latent heat B.t.u.'s/gallon | 1,377 | 1,615 | 2,887 | 1,522 | 1,678 | 1,678 | 1,615 |
| Ditto B.t.u.'s/lb. | 166 | 195 | 350 | 198 | 206 | 206 | 195 |

NOTE: Octane numbers of all leaded samples were determined with blends of C.11 and F.1 having a constant lead concentration of 4.c.c.s. per Imperial gallon (3.3 per U.S. gallon). See Journal of the Institute of Petroleum, Feb. 1939. The unleaded samples were matched against blends of C.11 and F.1, unleaded.

# Contents...

## REFINING TECHNOLOGY

### June 14, 1939


Aviation fuel development has moved to the center of the stage rapidly within the past year. It is fitting that both the A.P.I. mid-year meeting and the World Automotive Engineering Congress of the S.A.E. should spend much time studying aviation fuels and their testing. Papers from both meetings and general discussion at the A.P.I. meeting are sunmmarized ..... R-246

Standardization of Diesel fuels has been slow because we do not know exactly what qualities are most desirable. It now seems that cetane number is not so important as some other qualities providing ignition quality is high enough to overcome misfiring. Two papers before the World Automotive Engineering Congress discuss fuel qualities ..... R-254

Several speakers before the World Automotive Engineering Congress agreed that improvement in lubricating oils in the future lies largely in the field of additives. These must be true oxidation inhibitors as well as metal deactivators ..... R-258

Profits for the oil refining industry must come from the development of by-products in the opinion of William A. Slater, newly elected vice president in charge of refining of Gulf Oil Corp. Mr. Slater has been engaged in the Gulf's refining division for 32 years as tester, plant superintendent, general superintendent and general manager ..... R-260

The need for increased accuracy in measuring viscosity in refinery control, particularly in the manufacture of lubricating oil and diesel fuels, has stimulated investigators to develop the Ostwald type of instrument to the point of being practical in routine testing. E. H. Zeitfuchs, Standard of California, one of these developers, now believes he has an excellent substitute for and improvement on the Saybolt viscosimeter ..... R-262

Gasoline plants now are as safely operated as other industrial plants because the industry has recognized the inherent hazards in handling such light products. Improved equipment and continuous education have improved the accident record of the industry ..... R-264

Activities of Equipment Manufacturers ..... R-268

New Patents ..... R-267

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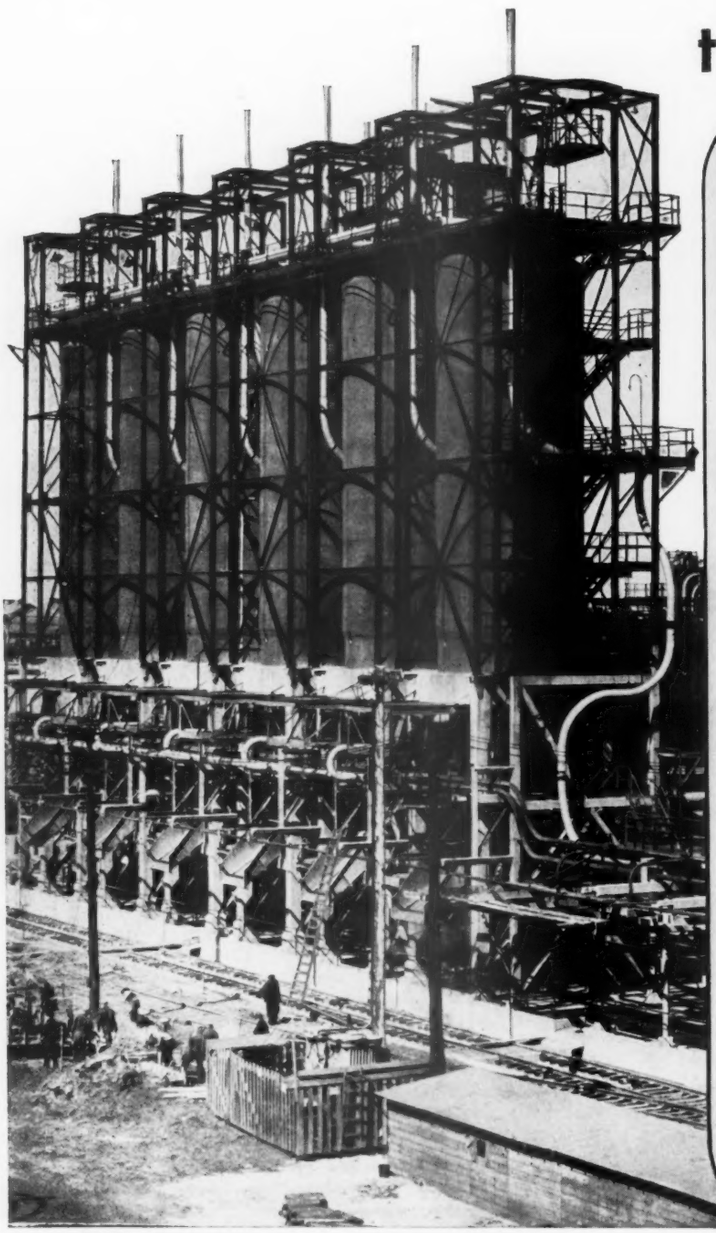
# KELLOGG-built delayed coking units enable refiners to secure . . .



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year. It was again used in 1931 as a "reference" for fuel tests in developing a more powerful racing engine winning the 1931 race. No. 2 was developed from No. 1 by addition of 10 per cent methanol. This fuel was later altered to No. 3 to suit a higher engine speed for the engine used in winning the 1931 race. As might be expected, No. 3 was a bad fuel for cylinder distribution but worked well at full throttle and enabled the speed record to be raised above 400 miles per hour.

Fuel No. 4 was used by the 2800 b.h.p. Fiat engine of the Italian machine which eventually broke this record and still retains it. Fuels 5, 6, and 7 are recent developments of No. 2 for a very high duty liquid-cooled engine. It is interesting to note that all three fuels gave a superior power to the "100 octane plus 6" fuel, mainly on account of their methanol content.

The development of the compression ignition aviation engine has shown but little progress, Banks said. The common trouble of low take-off power has not been overcome and is the principal obstacle to progress of development. An excess air factor is still necessary for good combustion also and successful development of the combustion ignition aviation engine will mainly depend upon a supply of cheap air. This will involve investigation of blowers for improved efficiency, particularly for the two-stroke engine.

The principal advantages of this engine were said to be its comparatively "flat" fuel consumption curve and its ability to operate over a wide load range without much difference in specific fuel consumption also it can be controlled for minimum consumption at cruising condition without risk of damage and with comparative ease and simplicity. The elimination of electrical ignition and radio shielding are other advantages. On the question of reduced fire risk, the elimination of this alone would not sell the engine to the airline operator, he said.

## A.P.I. Symposium

A paper by S. D. Heron and Harold A. Beatty, Ethyl Gasoline Corp., Detroit, presented at the mid-year meeting of the American Petroleum Institute in New Orleans, May 18, was in general agreement with Mr. Banks on the question of practicability of diesels in aircraft. This paper dealt largely with two other important phases of aviation fuel development, knock-test methods and octane-number scale, and safety fuels.

It is believed by these technologists that the present partly satisfactory knock-test methods may be replaced by a supercharged method eventually. They find also a preference for a modification of the octane-number scale by the addition of 3.75 ml. per gallon to both heptane and iso-octane rather than an arbitrary performance number for high-octane fuels. A need is felt for an upper standard still better than iso-octane.

Safety fuels to reduce aircraft-fire hazards show great promise, they find. Spontaneous-ignition temperatures for a variety of high-octane safety fuels are much higher than for diesel fuels and engine operation and performance with safety fuel is expected to be superior to that of the compression-ignition engine. Results of some preliminary engine tests of safety fuel compare favorably with operation on gasoline. Further investigation along these lines is believed to be highly desirable.

Such high-octane fuels have flash points of 100 degrees Fahr. or more, only slightly lower than distillate diesel fuels, and they have much higher spontaneous-ignition temperatures, similar to high-octane gasolines. Fuels of this type were first proposed in 1926 in France by Ferrier and were used in the London-Paris air service. Probably these fuels had an octane number of less than 40. Standard Oil Development Co. first produced hydrogenated safety fuels in 1929. They were almost entirely aromatic in character and had an octane number above 90. The latter fuels failed to equal the fuel economy of the then current gasoline aircraft engines. The work was then dropped, apparently from lack of interest.

Recent investigation by Ethyl Gasoline Corp. has been made on fuels which have included completely paraffinic and almost completely aromatic types, both having flash points of about 110 degrees Fahr., and both being clear mobile liquids at —100 degrees Fahr. With leaded paraffinic safety fuel of 100 octane number it has proved possible in two test engines to obtain slightly lower fuel consumption with safety fuel than with 100-octane gasoline.

S. D. Heron is in charge of aeronautical research for Ethyl Gasoline Corp. at that company's Detroit laboratories. At the recent mid-year meeting of the American Petroleum Institute at New Orleans he read the principal paper at the session devoted to present needs and future developments of aviation fuels. Harold A. Beatty of the same company collaborated with Mr. Heron in preparing the paper

## Starting Problem

Engines operated on safety fuel require either gaseous or volatile liquid fuel for starting. Ethyl ether has been found to be a much better starting fuel than petroleum ether of the same boiling point. Gases such as ethylene merit consideration. On the other hand, it might be practicable to install a small electrically-heated cracking unit to crack either safety fuel or engine lubricating oil to a fixed gas, it was pointed out. Even though such a unit were of considerable size and weight, it still would be lighter, probably, than special pressure tanks for volatile or gaseous fuels. It would also avoid the manufacture, distribution, and storage of special starting fuels.

In a safety-fuel engine the only important untried mechanical feature would be the fuel-injection system. It has been the author's experience that current standard diesel injection equipment gives excellent and reliable service in injection of gasoline.

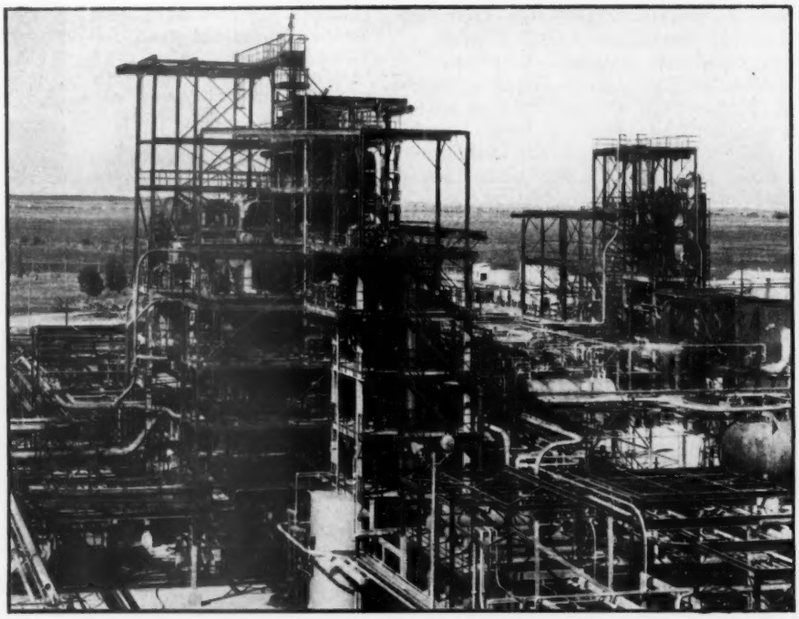
While safety fuels of high octane number have been to date almost entirely aromatic in type, with octane numbers varying between 75 and 95, paraffinic safety fuels of 99 octane number clear, with a lead response similar to iso-octane, have been produced, and appear to be the most desirable known type. To the best of the authors' information, however, such fuels cannot be manufactured economically on a large scale at present. Potential production of aromatic safety fuels by synthesis appears to be almost unlimited, and quantity production by solvent extraction of suitable crudes is possible.

Safety fuel to date has had an ASTM distillation range of approximately 320 to 400 degrees Fahr., and a flash point of about 110 degrees Fahr. It is the authors' view that lowering the flash point or increasing the end point will be undesirable in relation to both safety and engine operation.

## Test Methods

The present situation in respect to knock testing being unsatisfactory, methods involving supercharging seem to offer the best possibilities in respect to sensitivity at high anti-knock values, the authors stated. There are many reasons for believing that supercharging will be a part of the ultimate solution of knock testing aviation fuels for spark-ignition engines. The method is costly at present, however, as well as complicated and relatively slow. Among the problems in knock-testing of aircraft fuel were named depreciation of ratings with increase of cylinder temperature, increase of ratings with increase of intake density, difficulty with aromatics, reduction of relative ratings with increase of spark advance, and uncertain effects of intake temperature.

The heptane-*iso*octane scale was adequate until 100-octane fuel came into general use. The *iso*octane plus lead scale has been in temporary use but it has disad-



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# CLAY TREATING

vantages among which is the fact that the scale is not continuous. Fuels are known already which, under severe conditions of knock test, have values without lead additions in excess of iso-octane plus 4 ml. tetraethyl lead and in addition, respond positively to lead additions. It is not unlikely that one of these fuels may be chosen later with *n*heptane and constant lead to form a new scale.

The objection to performance number is the difficulty of determination, it was stated. The opinion that a performance-number scale would be preferable to a scale based on two fuels, was said to be due in part to the fact that the relation of engine performance to octane number is far from linear.

## A.P.I. Discussion

Following presentation of the A.P.I. paper by S. D. Heron, written discussions were read by several to whom requests were made by Raymond Haskell, chairman of the meeting session. Among those who discussed the paper was Robert V. Kerley, chief, Fuel and Oil Testing Unit, Power Plant Branch, Material Division, U. S. Army Air Corps.

Mr. Kerley said he believed there is no necessity for divergence in distillation characteristics and knock rating methods. These divergences, he believed, are due to reluctance in equipping laboratories with more than one type of knock testing equipment and to lack of definite information regarding the effect of distillation temperature limits on the fuel distribution in aircraft engines. As a result of work being accomplished he hoped many of the divergences may disappear within the next year.

Regarding the supercharged knock test, he said that regardless of the disadvantages of such equipment the method is becoming essential. It was pointed out that there are two fundamental operating characteristics which must be observed in the study of fuels in engines and much of the diversity of test results may be attributed to failure to observe both characteristics in knock tests. The effect of various fuels on cylinder operating temperature should not be neglected, he said. The use of the thermal plug in the Air Corps method of testing which was said to have been referred to as a trick by which the aromatics could be depreciated, may shortly be recognized as a fundamentally sound procedure.

## Air Corps Thermal Plug

"The use of aromatics as fuels and the operation of paraffinic hydro-carbon fuels under detonating conditions may have more in common than has been given general recognition. Both result in relatively high cylinder temperatures and both result in the presence of black smoke at the exhaust. . . .

"A study of previous tests indicates that any one aromatic fuel, for instance benzene, may be arbitrarily given a desire knock rating in the range of 88 octane number merely by specifying the degree of detonation which will be tolerated in the test procedure for the reference fuel. If a minimum discernible degree of detonation is specified and if cognizance is taken of the overheating tendency of these fuels by the use of a thermal plug, the aromatics cannot be given an octane number in the aircraft fuel range since the thermal plug temperature will always be higher for the aromatics than for the paraffinic fuels. Since it is undesirable to increase the amount of heat dissipated through the aircraft engine cooling system and since these fuels are low in heat value anyhow, both of which effects would give lower fuel economy in operation, it is indicated as desirable that such fuels should be eliminated from consideration as aircraft engine fuels for high output engines except where economic considerations demand their use.

"The use of a combination thermal plug and detonation indicator will permit fuels to be rated in the supercharged test engine. A suggested procedure is to operate the test engine at the boost pressure which will result in a specified degree of detonation with the test fuel when the mixture control is adjusted to give the lowest fuel-air ratio resulting in the maximum thermal plug temperature. Blends of reference fuels are then operated in the engine at the same operating conditions with the mixture control adjusted in a similar manner. The reference fuel blend which results in the same thermal plug temperature with no increase in degree of detonation determines the rating of the test fuel."

The possibility of increasing the safety of aircraft operation by the use of safety fuel was believed great enough that the subject should be thoroughly investigated. A word of warning was given that such fuels should involve a minimum sacrifice in engine performance.

In reply to Mr. Kerley, Mr. Heron stated that the use of the thermal plug and other instrumentation for measuring knock are really a condemnation of fuel evaluation in terms of audible knock. He said while cylinder overheating tendency and pre-ignition may be of no importance in automotive fuels they are important in aircraft fuels. The Air Corps investigations of a combination thermal plug and detonation indicator, therefore, were believed to be of considerable interest.

## Branch Chain Paraffins

H. C. Dickinson, chief, Heat and Power Division, National Bureau of Standards, discussed the suitability of paraffin hydrocarbons as fuel for high output aircraft engines. He said present information points to the branch chain paraffins as the probable source of the ultimate fuel for high-output engines of the present type. The most likely source of unleaded aircraft fuel of over 100-octane number is in that fraction of the paraffins which have not yet been prepared by the bureau, it was indicated.

H. K. Cummings, chief, Automotive Power Plants Section, National Bureau of Standards, was in general agreement with the authors regarding simplification of aviation fuel specifications, better knock testing, and octane number scale. The prospective early development of high output engines equipped to use safety fuel indicates the importance of studying further the relative merits of aromatic and paraffinic types and investigating economical means for their quantity production.

E. A. Ryder, Pratt & Whitney Aircraft, East Hartford, Conn., was also in agreement with the authors, stating that they left little to be said in addition. He pointed particularly to the lack of information on the cause of aircraft fires. Mr. Heron's reply was that he believed the present knowledge could be vastly extended in the laboratory and on the dynamometer at far lower cost than involved in actually wrecking equipment.

A. L. Beall, Wright Aeronautical Corp., Paterson, N. J., objected to the thought of developing engines suitable for operation on aromatic fuels. "The hazard of the presence of such fuels in service is that they may be introduced in an engine unsuitable for their use. Their destructive action when over-stressed by operation in an engine unsuitable for them makes their presence in available supplies a real hazard. It seems more reasonable to assume that the ingenious petroleum chemist may convert such hydrocarbons into other uses or into other compounds more acceptable to the currently used engine."

A. A. Priester, chief engineer for Pan American Airways, was gratified to note the extensive discussion of safety fuel and said his company "will require the use of safety fuel in any new airplanes built for us."

## Relative Costs

Gilbert K. Brower and William Littlewood, American Airlines, Inc., Chicago, regretted the lack of more detailed discussion of the economy phase of the subject, with particular reference to the relative costs of future higher octane fuels and of practical safety fuels but were in general agreement with the views of the authors.

The authors' reply was that the cost question was a phase of which they did not have first-hand knowledge, although they added that reduced costs on 95 to 100 oc-

tane fuel are probable in the near future. No definite answer on safety fuel costs could be given although it was indicated that 87 octane safety fuel of aromatic type would probably be available at about the same cost as present commercial 87 octane number gasoline. Such fuel will, of course, have lower heat of combustion than current straight-run gasoline, it was stated. However, this disparity will probably be counteracted in flight service by elimination of evaporation losses.

Major J. H. Doolittle, Shell Oil Co., St. Louis, made comments which were questioning in character. In answer to apparent doubts as to the stated superiority of engine operation and performance with safety fuel the authors said their statement was "only intended to apply to compression ignition and safety fuel engines in the present state of knowledge. Improvement in the specific air consumption of the compression ignition engine and of fuels for such engines may completely modify the situation. The leaded 100 octane paraffinic safety fuel used in fuel consumption tests . . . has a slightly higher heat of combustion than normal 100 octane gasoline and this is the probable reason for the slightly lower consumption obtained with the safety fuel."

Questioned as to the satisfactory use of diesel iniection equipment for safety fuel, particularly in relation to wear, it was stated that this equipment has been in service about 2000 hours and while some wear occurred this was explained on the grounds of inadequate filtering of the fuel.

Following the reading of written discussion, J. Bennett Hill, Sun Oil Co., offered a word of caution on specifications, particularly in connection with the use of the acid heat test as an index of stability of aviation fuel. It was pointed out that a better test for stability should be developed. He also wanted the industry to avoid a "minimum lead specification" inasmuch as it is not trying to specify minimum lead content. Mr. Heron agreed.

Dr. Barnard discussed, among other things, the desirability of fuel manufacturers getting some of the money back for equipment to be used in making high octane number fuels rather than developing another fuel which, perhaps in the near future, will displace these fuels. Mr. Heron's reply was that in the case of the iso-octane plants, they will just about as readily turn out highly paraffinic, high octane number fuel as they do iso-octane. Chairman Haskell remarked that "the safety fuel situation may turn out less scary than it appears."

The meeting was adjourned after congratulations were offered the Program Committee by A. Ludlow Clayden, Sun Oil Co., for procuring this paper by Mr. Heron. K. G. Mackenzie, The Texas Co., turned the credit all to Chairman Haskell.

## New Test Method

A new laboratory method for rating aviation fuels of high octane rating was discussed from a paper by R Stansfield and H. B. Taylor at the New York end of the World Automotive Engineering Congress May 24. This is an alteration of the Motor Method with the C.F.R. engine recommended by the Knock Rating Committee of the Institute of Petroleum. The change is in mixture temperature which was raised from 260 degrees Fahr. to 300 degrees Fahr. and the use of a cathode ray oscillograph with an indicating unit showing rate of change of pressure diagrams.

A measure of knock is taken as the height of the first wave of the detonation, the maximum observed height in a minute being recorded, and the mean of three such observations giving the required knock intensity. Since absolute height of the detonation wave on the oscillogram can be affected by very small alterations in engine condition, even though compression ratio, mixture temperature, mixture strength, and running speed be held constant, the usual method of comparison against secondary standard fuel blends has been adopted.

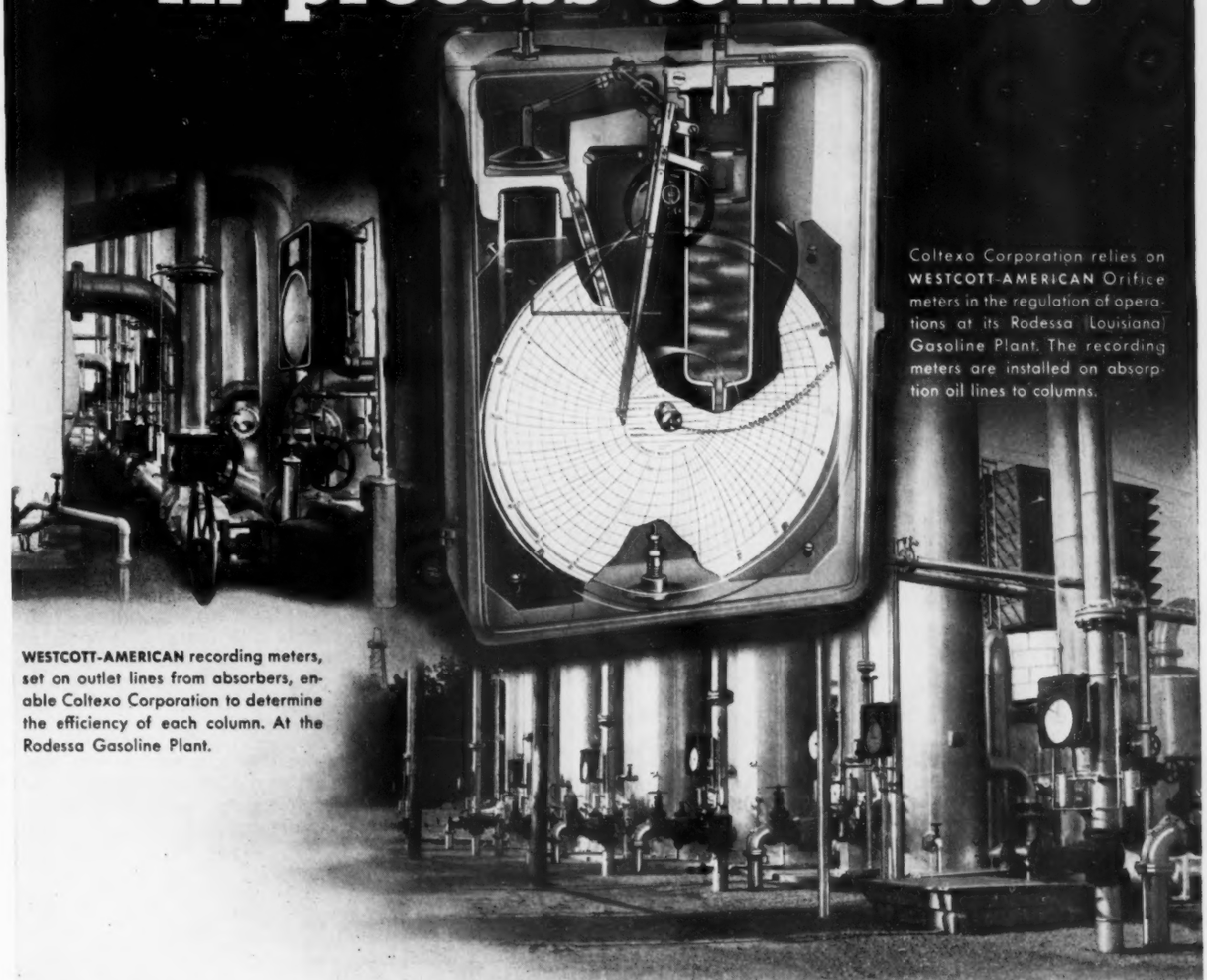
The development work leading to the method is based on two premises; first, that any fuel must exceed a definite minimum anti-knock value appropriate for its class when used under lean mixture cruising conditions, and secondly, that it must exceed a second minimum when used under rich conditions appropriate for take-off, the two minima not necessarily being the same in terms of the reference fuels adopted.

Two assumptions were made; that the Motor Method, itself a weak mixture test and agreeing with aero engine weak mixture ratings, should be capable of alteration to suit rich mixture conditions, and that instrumentation such as provided by the bouncing pin, the temperature plug or oscillograph pressure diagrams was unsuitable.

Results showed that the knock ratio ratings agreed in order very closely with the Motor Method ratings and they are therefore appropriate for the aero engine under weak mixture conditions. It was established that relative ratings were not affected by the necessary small alterations of ratio, and thus the working conditions are not critical. Certain aspects of the investigation of the method have not been completed. Should further work confirm the suitability of this type of test, the specification of knock testing of an aviation fuel would include a minimum octane number blend of secondary reference fuels which it must match under weak mixture conditions and a second minimum number for a match at, say, 45 per cent rich.

Not the result of a fire, earthquake, flood, or other major disaster, this is just the present stage of the abandonment, dismantling, salvaging, and scrapping of The Atlantic Refining Co.'s 9000-barrel refinery at Franklin, Pa. The machinery seen near the center of the picture was a part of the refrigeration plant

# *Measurement engineering* in process control . . .



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# Diesel Fuel Volatility Trend Hurts Operating Economy


## ABSTRACT

**Present trend of diesel fuels in the U. S. is toward volatile, highly paraffinic fuels of high A.P.I. gravity. This trend may change to more economical fuels as smoking, ring sticking and other problems are overcome.**

**Lack of definite and exact information as to optimum qualities of diesel fuels has retarded standardization. Thus far the importance of high cetane number has been overestimated. After misfiring and engine roughness has been overcome the gains obtainable from higher cetane number are too small to justify the added cost.**

**Higher cetane number fuels will be less important if the present trend toward higher combustion chamber temperatures continues.**

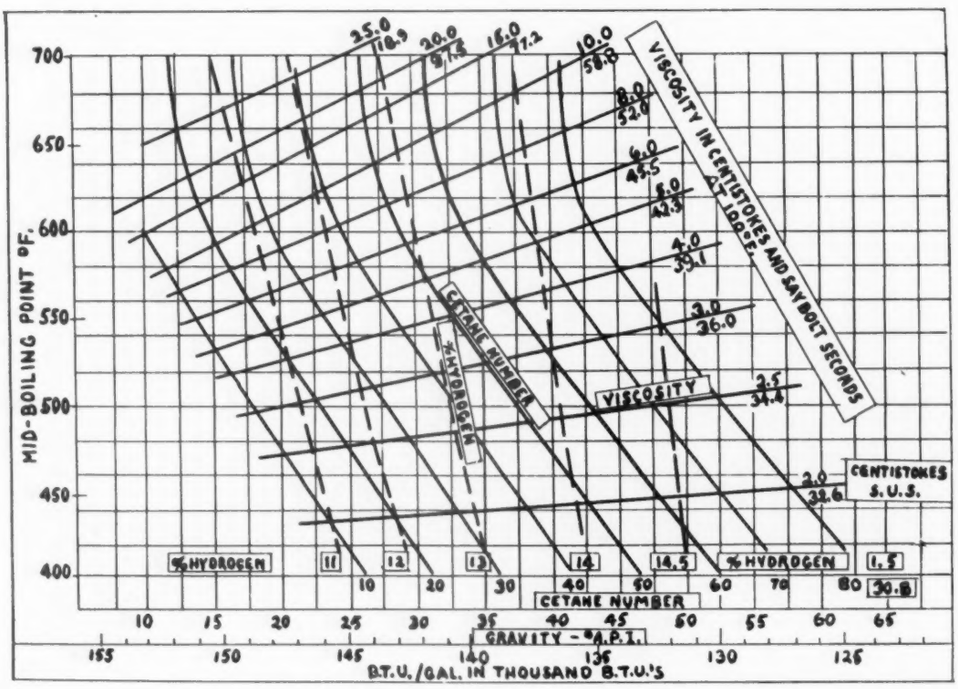

THE fact that neither the diesel engine manufacturer nor the oil refiner has positive and definite knowledge of the exact quality of fuel required is perhaps the most important reason for the wide divergence of diesel fuel quality, it was indicated by A. J. Blackwood and G. H. Cloud, Standard Oil Development Co., in a paper on "Diesel Fuel Characteristics Influencing Power and Economy" at the World Automotive Engineering Congress in San Francisco, June 8.

There is as yet no standardization of high-speed diesel fuels such as obtains for gasoline. Diesel fuels vary widely in quality, depending on various factors such as crude source, method of processing, and to a certain extent, upon the fact that many diesel fuels are also used for domestic heating. Many of the design features which distinguish one engine from another are intended primarily to circumvent the difficulties which are encountered when burning a wide variety of fuel. On the other hand, so long as some engines require "tailor made" fuels, there is little likelihood that any standardization of diesel fuel quality can be reached, it was indicated.

Data from an extended fuel research program were presented which largely concerned power and fuel economy differences resulting from the use of fuels differing in their physical and chemical characteristics. When attempting to uncover the basis for the belief by many diesel engineers that fuel economy on fuels of high ignition quality is not as good as on fuels of low ignition quality, some interesting results were obtained. In tests of three fuels in an engine operating at speeds from 900 to 1800 r.p.m., it was noted that the fuel economy of a fuel of high ignition quality was inferior to that of a fuel of low ignition quality. This comparison would tend to justify the belief that poor economy obtains when fuels of high ignition quality are used.

The third fuel gave the best economy of the three at low speeds whereas at high speeds it was the worst of the three. Results of this character led to a detailed investigation of the performance qualities of diesel fuels as dependent upon their physical and chemical characteristics. A group of gas oils, selected from widely different crudes, were each fractionated into four cuts of approximately 100° F. boiling range. These various fuel cuts were run in both multi-cylinder and single-cylinder engines and it was possible to isolate reasonably well the effects of ignition quality, boiling range, gravity, and other qualities.

It was practically impossible to separate the effect of fuel volatility as distinct from the effect of ignition quality and it was felt unlikely that within reasonable limits, fuel volatility can play the important part in engine behavior




The inter-relation of heat content, ignition quality, and viscosity of diesel fuels are shown in this graph and indicate the limits of possibility in specifying diesel fuel properties

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that it does in the gasoline engine where the fuel must be delivered to the combustion chamber through a manifold. The effect of varying the mid-boiling point of fuels of constant cetane number was that the volumetric fuel economy improved with increasing mid-boiling point. However, this is believed due to the fact that, for either constant gravity or cetane number, an increase in mid-boiling point of a fuel is accompanied by a corresponding increase in Btu. per gallon.

Regardless of all that has been written on the importance of ignition quality there still remains considerable doubt as to the real significance of ignition quality when stripped of the effect of other fuel properties, it was pointed out. For example, two fuels of 600 mid-boiling point, one having 70 cetane number and the other 30 cetane number had a ratio of volumetric fuel consumption of 0.550/0.518 or 1.06 at 1500 r.p.m. and a ratio of heating values of 148,000/138,000 Btu. per gallon or 1.07. This indicates that the changes in economy which are seemingly due to difference in cetane number, are actually the direct result of the change in heat content.

Changes in fuel economy are not invariably due to difference in heating value, however. When speed is increased, and the importance of ignition lag becomes more significant, consumption deviates from the heat content basis in favor of cetane number. When speed is reduced to 800 r.p.m., where ignition lag is of lesser importance, the reverse is true. It would appear, therefore, that there is an optimum balance between heat content per gallon, cetane number, and r.p.m., it was said.

In other words, at relatively low speeds, where ignition quality is of secondary importance, the best fuel consumption is obtained on the fuel having the highest heating value, whereas at elevated speeds where ignition quality is important, and where the quality of combustion might logically be expected to influence output more than at low speeds, the fuel of superior ignition quality gives fuel economies which may readily exceed those attained on fuels of higher heat content but lower ignition quality. It is possible that even greater advantage may be realized from high ignition quality fuels on engines which have provisions for automatically varying the injection timing and the rate of fuel injection. Horsepower was found to be similarly affected by ignition quality.

There are frequently encountered cases where a low viscosity fuel results in severe power losses, where worn equipment is being used, and an account may be lost because a competitive fuel of higher viscosity gives better power. In such cases, in addition to the lower viscosity fuel having lower heating value per gallon, the full fuel delivery does not reach the combustion chamber due to leakage, and the net power loss is due to the combined effects of the two.

It appears that an increase in fuel viscosity from, say, 33 seconds Saybolt to 40 seconds at 100° F. will reduce the leakage by some 50%. On other hand, doubling the pump clearances increases the leakage four-fold. This would strongly indicate that good mechanical condition of the pump and replacements of worn parts is the cure for power loss troubles rather than to increase the viscosity of the fuel. Data was shown indicating that the volumetric fuel consumption of the engine is a function of the heating value of the fuel in most instances.

It was concluded that the present trend of fuel quality in the U. S. appears to be toward volatile, highly-paraffinic fuels which necessarily have high A. P. I. gravity. It is quite probable that this trend may change when the various engine manufacturers have overcome some of the design difficulties which have led to undue smoking, ring sticking, engine fouling troubles, and the like, all of which have probably contributed to the relatively widespread demand for the lighter fuels, it is believed. When these difficulties have been overcome and customers select diesels for economy of operation, more attention will be given by engine builders to fuel economy. This will result in a demand for fuels of higher heating value per gallon, i.e. lower gravity fuels. Just how far speed trends in engine design and the ability of engines to use low cetane number fuels will permit this to extend remains to be seen.

A further conclusion was that some method for ascertaining the cross relationship of the most important fuel characteristics: heating value, ignition quality, and possibly fuel viscosity, would be decidedly useful. The accompanying chart was prepared with this in mind and was said to be useful in learning to appreciate the significance of the interrelated fuel properties and in writing specifications, such that impossible requirements are not established as frequently happens.

W. S. Mount and G. A. Hope, Socony-Vacuum Oil Co., gave the following conclusions in a paper presented at the New York meeting of the Congress on May 22. Their paper dealt with the "Relation of Diesel Fuel Properties to Their Engine Performance" and the authors stated that their study of some of the fundamentals might point to effective means for improving the performance of existing high speed diesel engines.

The importance of very high cetane number appears to have been over-estimated. It is true that the cetane number requirement as defined by misfiring and engine roughness must be satisfied. However, the gain from fuels of higher cetane number is too small to justify the extra cost.

The roughness of combustion as measured by knock intensity with the oscillograph is improved by use of fuels having a cetane number approximately ten units higher than the minimum needed to prevent misfiring.

The combustion knock in a diesel engine finds its origin with the lighter unsupported metal structures. The valve case cover plates, side cover plates and crankcase pan appear to be noisiest.

The combustion cycle in an engine built for variable speed ranges from partially controlled combustion at rated load to totally uncontrolled combustion under conditions approaching idling.

If the design of the diesel engine is such that the combustion process is uncontrolled, no reasonable fuel improvement will produce smooth combustion.

It is possible to burn fuels ranging over wide limits in respect to amount of cracked and straight run stocks, viscosity, volatility, gravity and crude source, without deflecting the combustion curve from its normal path. Similar changes in fuel affect the maximum power and fuel consumption no more than 5%, except in special cases.

Variations in the combustion process with normal changes in speed and load are many times greater than effects of fuel quality improvement.

The engines will digest so called low quality fuels with least difficulty under the conditions which result in high combustion chamber temperatures. Conditions favoring high combustion temperatures are heavy loads, moderately high speed and heavy loads, high jacket water temperature and high air temperatures.

Any factor tending to reduce the combustion chamber temperature will make the engine more critical of the fuel.

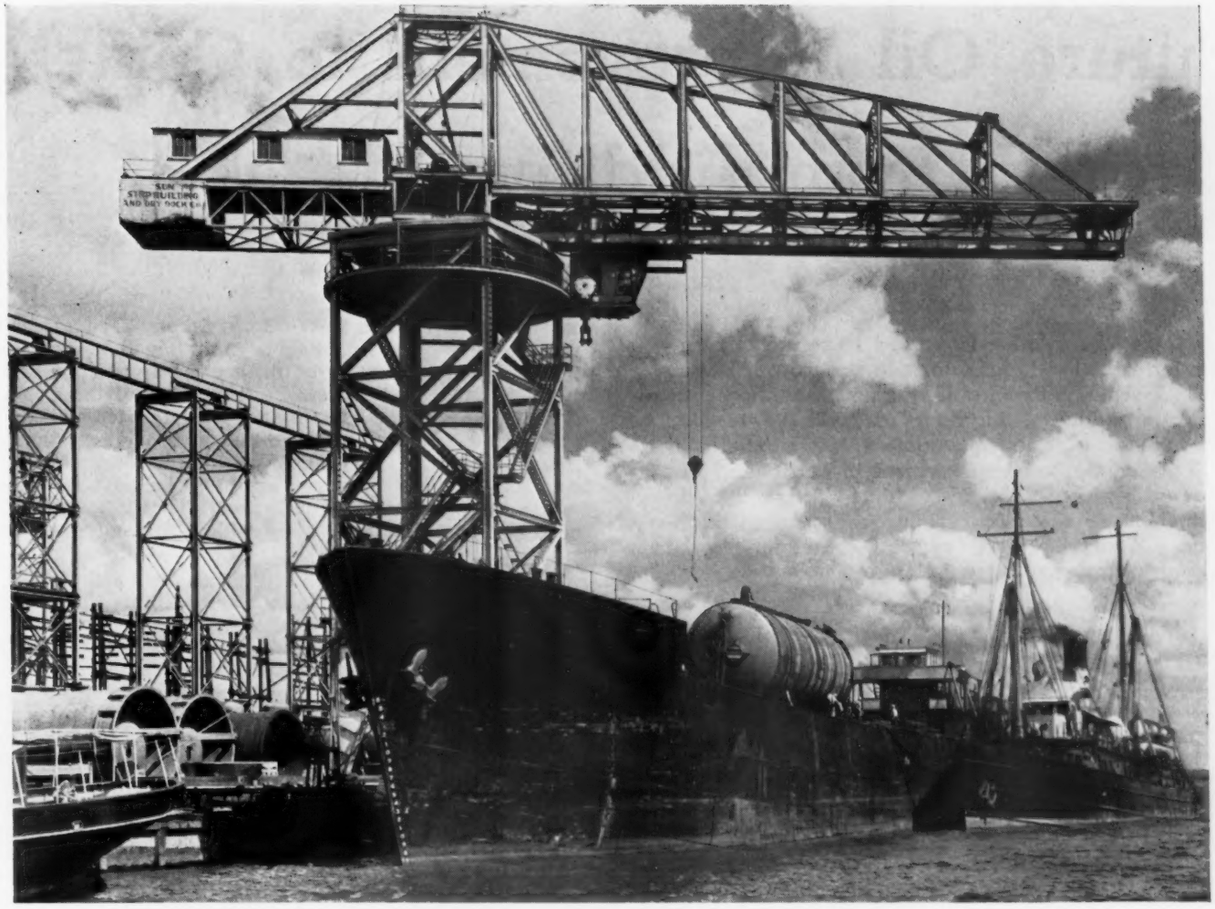
The ignition delay occurring at high speed with very light loads is excessive. Such an operating condition combined with deceleration at low throttle settings is prone to cause incomplete combustion and should be kept at a minimum for clean exhaust conditions.

Diesel engines constructed with the highest compression pressures operate with the most satisfactory combustion control, other conditions being the same.

Adjustment of injection advance as a means for correcting poor ignition quality is too dangerous an expedient for the engine operator to employ.

The combustion process in modern high speed diesel engines is governed largely by the inherent design of the engine. Once the engine has been built and delivered to the customer there is little that the fuel supplier can do to improve the performance of the engine. Slight improvements in engine roughness are, of course, possible with

(*Continued on page R-266*)



LOADING at Sun's Plant a Fractionating Tower for Water Shipment. This tower is 18 ft. diameter. 3 other towers are stored on the Pier awaiting to be loaded. These are 14′ 8″ diameter x 83′ 0″ long, too large for rail shipment.

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# Future Oil Improvement to Come Largely from Additives

**Abstract**

**Motor oil oxidation is caused largely by catalysis but a metal deactivator will not stop oxidation fully. An additive for lubricants thus should be a true oxidation inhibitor as well as to stop changes in oil due to its contact with metals.**

**Further marked improvement in lubricating oils lies within the realm of additives rather than in better crude selection or improved refining methods. The problem is to add something to oil which never was there before.**

THE most satisfactory methods of controlling crankcase oil oxidation by addition agents is to counteract the effect of catalysis on the oil, it was concluded by J. R. Sabina in a discussion of the possibilities of controlling the deterioration of crankcase lubricating oils in service before the World Automotive Engineering Congress in San Francisco, June 8. A combination of a metal deactivator and a true oxidation inhibitor would come still closer to producing the desired results, however.

Results obtained from engine tests lead to the conclusion that the susceptibility to improvement by addition agents varies over a wide range. A universal panacea is still being sought, he said. It is inevitable that further advances will be made in the field of addition agents.

The internal combustion engine is virtually a perfect device for oxidizing oil, but its complexity makes simple reproduction of oil oxidation in a laboratory device extremely difficult, he said. Tests on one phase of oxidation—color darkening—brought out the difference between two agents, both of which were capable of inhibiting oxidation but only one of which retained this ability in the presence of copper. Similar results were obtained with corrosion and sludge. Since there is a considerable difference between oils response to addition agents also varies.

The benefits derived by the use of the addition agent in the sludge reduction tests showed clearly that reduction of oil deterioration and engine fouling is largely due to the inhibition of the catalytic effect of engine metals. Earlier work indicated that as much as two-thirds of the oxidation is caused by these catalysts, the balance being oxidation that would have taken place without the presence of metals. This would indicate that a fairly wide margin exists for improvement of this technique, providing that catalytic effects occur over a broad band of temperature conditions.

Addition agents of various types have not yet demonstrated that it is possible to completely eliminate lacquer formation. The main contributing factor was said to be temperature, although this might be a highly localized effect, since it is possible to operate some engines at high oil temperatures without producing the same quantities of this material as produced by other engines. Lacquer reduction by use of addition agents in various oils has ranged from inappreciable amounts to as high as 75%. No reliable test has yet been developed to foretell the behaviour of oils in this respect, hence the final evaluation must be conducted in engines, which is a slow and tedious process. Experimental evidence in single cylinder engines has indicated that oil and engine conditions can also be improved by use of addition agents not of the metal inhibitor type, though not to as great a degree.

J. P. Stewart and B. W. Story, Socony-Vacuum Oil Co., were in agreement with Sabina in stating that further improvement of lubricating oil must come by addition agents. In their paper at the New York meeting of the Congress they said, "It seems safe to state that further marked improvement by either of those means (crude selection and refining operations) now appears improbable and that the day has come when something must be put into the oil rather than that more be taken out. That 'something' . . . must be better than anything which originally existed in any oil."

They concluded also that deposits for which fuel is responsible can only be minimized by obtaining the optimum of combustion efficiency in the cylinders and maintaining an effective ring condition. The engine deposits which are associated with intermittent operation in winter can be reduced far more by keeping engine temperatures up and maintaining reasonable idling mixtures than by any change that could conceivably be made in the lubricant since such deposits are primarily fuel soot and partial combustion products.

To the average fleet operator, engine deposits fall into four main categories; those that endanger the engine through interference with oil distribution; those that cause a gradual lowering of efficiency of the engine as an operating unit until an overhaul is required; those that interfere with the proper functioning of some engine part and result in interrupted service; and deposits which in themselves do not interfere with engine operation but which makes the engine overhaul a more difficult and costly job.

The authors included in the first category so-called coffee grounds, lacquer, and sludges which may collect on the oil screen. In the second are deposits which form on the piston and which by interference with ring action and in conjunction with worn piston rings produce abnormally high oil consumption and blowby. The third include lacquers formed on various members of the valve mechanism and interfere with valve action. In the fourth category are sludge deposits found in the timing gear chamber, dry adherent deposits on the crankshaft, deposits plastered on crankcase walls, cover plates, in valve chambers, etc.

When these apparently different types of deposits are brought to the laboratory for analyses, the data obtained are not always in accord with appearances. Deposits which seemed so different and were collected from locations in the engine where temperatures differ widely, sometimes give surprisingly similar analyses.

In regard to the lubrication of aircraft engines, Arthur Nutt, Wright Aeronautical Corp., told the Congress in San Francisco that "there is little question that the progress in the development of lubricating oils has not kept pace with the progress of fuels and engine development." He denied that his organization had forced the use of compounds in oils but admitted that "about 80% of the oils which meet their specification for high output engines do use compounds."

Mr. Nutt's criticism was aimed particularly at engine deposits resulting from oxidation. He said if it were not for the severe oxidation of the oil, the engine could be operated for many additional hours as far as wear is concerned without tearing the engine down for cleaning. He said there is no question that improved oils can be obtained as a number of them have been developed during the past few years.

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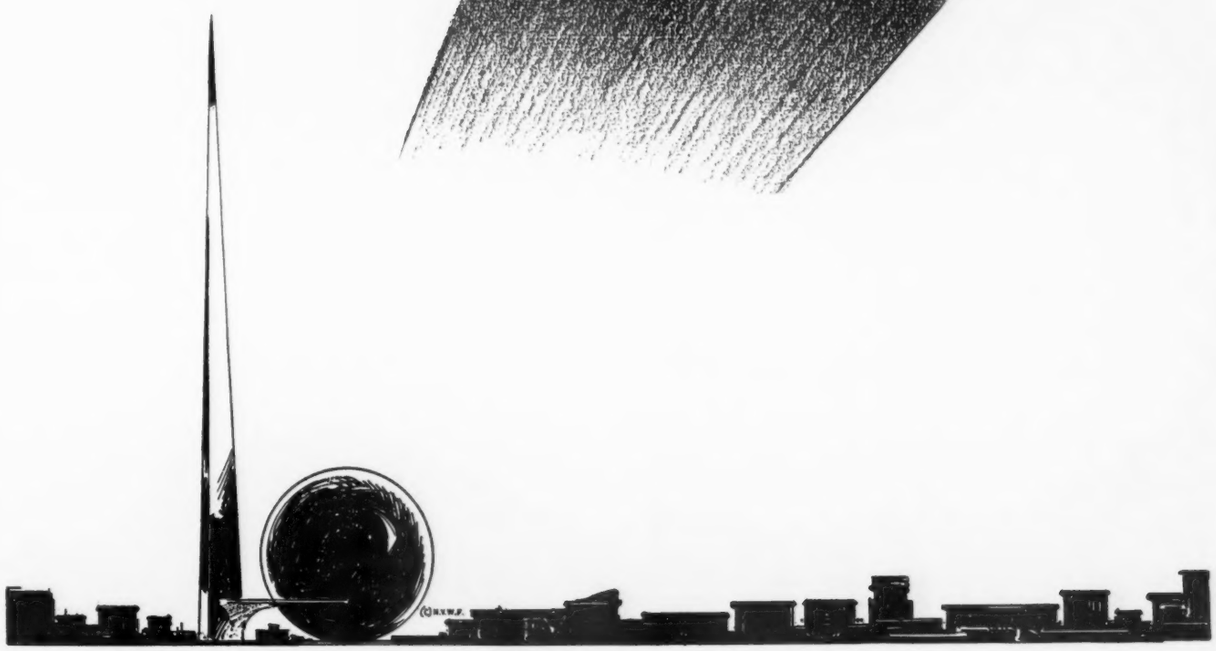

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# An Interview . . .

## With a New Vice President Of Gulf Oil Corporation

*"There's a divinity that shapes our ends,*
*"Rough hew them how we will."*

Such is the basic philosophy of William A. Slater, newly elected vice-president in charge of refining for Gulf Oil Corp.

"Every man's destiny lies within himself," is the way Slater expresses his idea which obviously differs little from that put in Hamlet's mouth by Shakespeare 300 years ago.

If an individual is to be happy in this life he must find himself. If his first job doesn't fit he should try again. If he wants a job that is denied him he should keep after the position he has his eyes on until the prospective employer is sold.

Mr. Slater has seen numerous examples of young men who have followed this idea successfully. They have wanted to work for Gulf Oil Corp. so badly that they have come back time after time until they won what they wanted by sheer persistency.

In Slater's own case extensive experimentation was not necessary. Nor was it necessary for him to storm the citadel repeatedly to get the first job.

Thirty-two years ago a professor at Pennsylvania State College asked the late George H. Taber, Sr., to hire two or three members of the class of 1907. Mr. Taber then was general manager of refineries for the newly organized Gulf Refining Co. Only two years previously the Mellons had bought the Guffey properties in Texas and launched into the oil business.

One of the graduates from Penn State hired by Mr. Taber that year was William A. Slater, a young student of chemistry from Warren, Pa. The young man grew up in the oil country and wanted to get into the business although he did not spring from an oil family himself.

No one who chats with the graying vice president of Gulf today can doubt that he would have been in the oil business today—probably with the Gulf itself—even if Taber had refused the professor's request in 1907. The straight line of Slater's mouth, the set of his jaw would be enough to convince a casual observer that he is the sort who will get where he sets out to go.

Once on the job with Gulf Slater did not stay with his chemistry. Within two years he was out of the laboratory in the engineering and operating end of refining. Since that first shift he has made no others in 30 continuous years with Gulf, although he has occupied every job up the refinery operating ladder in that company.

In his new position Slater succeeds the late Charles Buerger who died last January. Probably no two men could be as different in their characteristics as these two, the former head of refining for Gulf and the new occupant of that position.

Buerger had the type of mind which seems to solve problems by intuition. As soon as the factors were laid before him he had an instantaneous decision. To the observer he seemed to have the answer before the problem was formulated—he seemed to complete the problem and announce the answer.

An engineer once visited Buerger to explain a plant he had designed. As the engineer sat down across the desk from the Gulf executive he unfolded an intricate blueprint and spread it before him as a guide to talk from.

Telling about the visit later the engineer said to a friend: "Buerger could read my blueprint across the desk and upside down better than I could—and I worked out the design and drew the print myself."

The caller in Slater's office is likely to find him a good listener. The straight line of his mouth is bent by a smiling eye and the visitor begins to feel at home. He is friendly in his greeting and appears willing to spend whatever time is necessary to permit the caller to state his case.

Slater is the type of man who carefully considers every angle of a problem before arriving at a solution. His friends say that few problems come to him for quick solution. That is because he has the habit of thinking ahead. He anticipates the problem, sees it coming, studies it thoroughly so that he is able to give a well-considered decision when the problem finally presents itself.

What of the future of the refining industry now? Slater sees great opportunities for the technologist who will develop valuable by-products of petroleum. Profits of the future, he thinks, must come from these by-products, not from gasoline or fuel oil.

Today's crude comes from wells up to two miles deep. The oil is transported hundreds of miles to the refinery. Once at the refinery the oil may be subjected to extreme temperatures and pressures in highly expensive equipment. It must be vaporized, condensed, treated, stored and finally loaded into transportation facilities at a selling price of only about 1 cent per pound for gasoline, less for fuel.

That by-product must carry the profit is the well-considered opinion of this executive who has been watching the progress of this industry since 1907.

Slater was not the first chemist hired by the Gulf but he did not miss that distinction much. There were two or three testers working under Chief Chemist J. E. Biggens at Gulf's Port Arthur plant in the fall of 1907 when the young graduate presented himself. Their job was to run distillation, flash and fire tests on kerosine. Kerosine was the money crop and it was essential for profitable operation to get as large a yield as possible without letting the flash and fire get unduly low. They could not crowd too much gasoline into the burning oil.

Gulf's Port Arthur plant even then was a huge one. The company was running about a million barrels of crude to stills a month. The oil was largely from Indian Territory. Glenn Pool was the big flush field of high gravity crude of that day.

Slater soon abandoned his job as a tester. Within about two years, as mentioned previously, he was in the operating department working under the late George L. Prichard. Before his death in 1935 Prichard had traversed the route taken by most men who have gotten to the top of the Gulf refining organization. That involves the management of the big Port Arthur plant, management of Gulf plants in Texas and finally management of all Gulf plants.

He had only been on the Gulf payroll four years when Slater was chosen to supervise construction of a new refinery at Fort Worth. In this work he was associated closely with Herbert Henderson, now chief of the engineer-

(*Continued on page R-263*)

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## 1. Reduced Tetraethyl Lead Requirements

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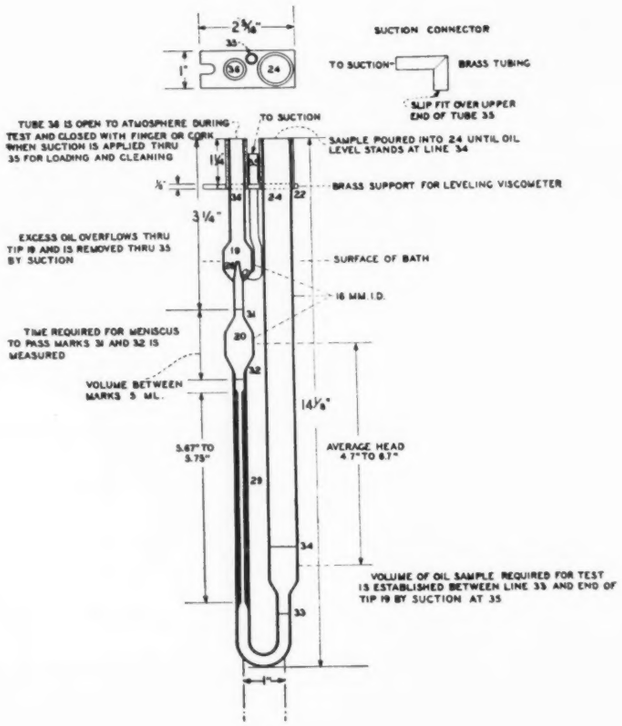
# Modifies Ostwald Viscosimeter For Routine Control Tests

ADDITION of a third tube at the upper end of the Zeitfuchs viscosimeter, which was developed in the laboratories of Standard Oil Co. of California and is a modification of the Ostwald type of instrument, has greatly increased the ease of operation of this instrument. Features of the instrument and the particular adaptability of the instrument to routine testing in refinery control laboratories were discussed by the designer, E. H. Zeitfuchs, at the ninth mid-year meeting of the American Petroleum Institute in New Orleans, May 18.*

Mr. Zeitfuchs announced for Standard of Cal., patent holder on the viscosimeter, that steps have been taken toward an early dedication of the patent to the public.

The measurement of viscosities in routine refinery operation with greater accuracy than is obtainable with the Saybolt viscosimeter has become of considerable importance. Increased accuracy is particularly important in connection with the measurement of viscosities of motor lubricating oils and diesel fuels, Zeitfuchs said. Although the Saybolt instrument is rugged and easily operated, its use is time-consuming, and its accuracy definitely is limited. The principal sources of error result from poor temperature control, very large kinetic energy correction, and uncertainty in the behavior of fluid at the outlet end of the capillary, it was pointed out. The labor requirement of the Zeitfuchs viscosimeter is appreciably less and it not only meets the demand for greater accuracy but has the further advantage of rugged construction.

Originally this viscosimeter was designed and developed for research laboratory measurements in which the highest possible accuracy is required. The marked ease and speed of operation in routine work, combined with its accuracy, led to its introduction into the refinery control laboratory.




Experience with the instrument under routine laboratory conditions resulted in the addition of a third tube at the upper end for applying suction during loading and cleaning. Important features of the viscosimeter that were emphasized by Zeitfuchs are as follows:

1. The method of establishing the working volume of liquid is accurate and rapid.

2. The use of a supporting member in which the viscosimeter is rigidly assembled allows clamping to a level surface. This insures perfect alignment and helps to avoid breakage.

3. The design reduces the error due to difference in the surface tension of petroleum oils to a negligible value.

4. The design offers a practical means for constructing viscosimeters with identical constants. The use of

*Some operating, design and calibration data of the viscosimeter were published in National Petroleum News, Feb. 17, 1937, pp. 68-71.

### Dr. E. H. Zeitfuchs

Engaged principally in the study of fundamental physical properties of petroleum products, Dr. Zeitfuchs has spent the past 18 years with Standard Oil Co. of Cal. A far westerner by birth at Portland, Oregon, he graduated from the University of California. Later he received degrees from Massachusetts Institute of Technology and Clark University. His early training was as a machinist. He spent four years with the U. S. Bureau of Mines at San Francisco from 1912 to 1916.

### Range of Viscosimeters

| Viscosimeter designation | No. 0.01 | No. 0.025 | No. 0.1 | No. 0.25 | No. 1.0 | No. 5.0 |
|---|---|---|---|---|---|---|
| Viscosimeter constant C* | 0.01 | 0.025 | 0.1 | 0.25 | 1.0 | 5.0 |
| Flow time, sec. | | | 150 to 1,000 | | | |
| Range of viscosity: | | | | | | |
| Kinematic viscosity, centistokes | 1.5–10.0 | 3.75–25.0 | 15.0–100.0 | 37.5–250.0 | 150.0–1,000.0 | 750.0–5,000.0 |
| Saybolt Universal at 100 deg., F., sec. | 58.8 | 38.4–118.9 | 77.2–462.0 | 174.5–1,156 | 693–4,620 | 3,465–23,100 |
| Capillary diameters (mm.) (limits) | 0.65–0.71 | 0.82–0.89 | 1.15–1.26 | 1.45–1.58 | 2.05–2.24 | 3.07–3.35 |

C* defined by equation kinematic viscosity (centistokes) $= Ct - \frac{0.77}{t}$.
t = flow time, sec.

identical viscosimeters has been found to be extremely important in routine service.

5. The viscosimeter may be mounted permanently in a constant-temperature bath. Breakage has been found to be negligible in control laboratory services when this is done.

6. Opening and closing a cock in the suction line is the only manipulation required for filling and cleaning. The average time to clean a viscosimeter is about 30 seconds.

The development of an accurate method of determining viscosity has been given considerable study and research. A number of other viscosimeters of the kinematic type have been developed and now are used to a limited extent in the industry, viz., the Ubbelohde and the Fenske types. While these viscosimeters will give accurate results, neither of them fulfills the requirements for ordinary routine refinery services of ruggedness and ease of manipulation, Zeitfuchs said. Also these viscosimeters are not manufactured with identical constants and this is a rather serious drawback in their application to routine service in laboratories in which a large number of viscosimeters are in use.

The Zeitfuchs viscosimeter recently has been subjected to an extensive series of tests in the laboratories of representative oil companies. In these tests the superiority of the instrument has been demonstrated further by the accuracy of the determinations and the complete freedom from operating difficulties.

The time of flow and capillary diameters of a series of six viscosimeters cover the range of viscosity of greatest interest in refining practice. These ranges are shown in the accompanying table. The range of flow times for each instrument has been limited arbitrarily between 150 and 1000 seconds. At the lower limit of time an uncertainty in timing of 0.2 second will result in an error of 0.13% in the viscosity measurement. These ranges may be extended by selection of the proper capillary bore if desired. Results obtained in kinematic units may be changed to Saybolt seconds by tables or chart.

## An Interview

(*Continued from Page R-260*)

ing & construction division and an old schoolmate, Tom Glasgow, who now is Henderson's assistant.

Once the Fort Worth plant was built, Slater was given the job of running it. He was superintendent until 1918 when he went back to Port Arthur as assistant superintendent. In 1929 he was made general superintendent of Gulf refineries in Texas and in 1935 was transferred to Pittsburgh as general manager of refineries.

Now that he has been made vice president Slater's old job as general manager of refineries is filled by Thomas J. Sullivan who has followed in his footsteps as assistant superintendent at Port Arthur and general superintendency of Gulf refineries in Texas.

Although he is a long way from his favorite recreation haunts Slater has not abandoned his rod and his gun. Friends in West Texas invite him every year for a season of hunting wild turkey and deer. He still enjoys casting for bass in Louisiana or fly fishing.

While at Fort Worth Slater became proficient at trap shooting as well as a game hunter.

Slater is an ardent reader of books on biology, as well as being a hunter and angler. Through the years he has built a large personal library. Fiction has small place among his books. The natural sciences and psychology are his favorite studies. It may well be that his study of psychology has been a big factor in his success as a leader of men.

William A. Slater is not a seeker of personal publicity. Application to the publicity department of Gulf failed to yield the picture reproduced on the cover of this issue. He had refused a photograph when it was asked. It was only by devious means and a final appeal through J. E. Nelson, vice president and treasurer of Gulf, that the photograph was obtained.

"Don't say much about me, please," was the final injunction given this writer when he called on Mr. Slater.

A PICTURE OF WATER COOLING ECONOMY

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*Manufacturers of a Complete Line of Water Cooling Equipment*

# Equipment Improvement and Education Make Gasoline Plants Safer

By N. Shellshear *

**This article is a condensation of a paper presented before the California Natural Gasoline Association meeting at Los Angeles, March 2, 1939.**

NATURAL gasoline plants, once considered a formidable hazard, are now being run as safely as other industrial plants. To keep them to this standard every man in these plants should know the hazards that surround him and how to handle any problems which these hazards involve.

This education should go beyond safety consideration. It should go into the economical and efficient operation of the plant. Flow sheets should be thoroughly understood by operators and be kept up to date. Regular safety meetings of plant personnel will keep the idea of safety continually in mind, bring out unsafe conditions, and stimulate constructive suggestions.

The safety relief valve is the most important mechanical protective device in our gasoline plants. Every vessel or line containing volatile fluid which can be "closed in" should have safety valve protection adequate for emergencies. Most pressure vessel failures that occur in gasoline plants are caused from excessive static pressure rather than from combustion explosions. As a general rule pressure vessels have relief valves designed to handle the maximum gas capacity at a pressure not greater than 10 per cent above normal working pressure.

Not all pressure vessels require safety valves. The intermediate scrubbers in a compressor plant are well protected by the cylinder relief valves. The absorber, however, can be "closed in" and therefore should be protected by safety valves against vapor expansion due to heat from the sun or the emergency of a fire. Safety valve adjustment should be sealed to prevent tampering. They should be pulled periodically to prevent sticking and be thoroughly inspected at least once a year to see that they are working freely.

Stills, absorbers, or other pressure vessels present quite a different problem than boilers or pressure vessels whose vapors are not dangerous and on which safety valves should be directly connected without an intervening stop valve. A safety valve leaking flammable gas or vapors is a menace. Another difference is that any rise of pressure in an absorption system is usually cared for at one or more other points.

In vessels of this type the California Natural Gasoline Association committee recommends a three-way three-port "tank switching" valve installed between the safety valve and the vessel so that one valve may be removed without shutting in the vessel and adequate valve protection still maintained. An alternative recommendation is that there be one or more safety valves so assembled that there is a stop valve between each safety valve and the pressure vessel. The intermediate valve is sealed open and the safety valve set by a certified inspector. These valves can be touched only by the plant foreman in emergencies. We believe the intermediate valve should be a modern plug valve, preferably. The handle must show whether the valve is open or shut by being permanently fixed to the plug. In some instances where relief valves are connected without an intermediate valve a leak may be stopped by screwing a second pop valve on to the first until repairs can be made when the plant is shut down.

Safety valves should discharge their vapors vertically into the air at least 10 feet above ground. A small vent should be provided at the bottom of the pipe to prevent it becoming full of condensate. Sensitive pilot-operated back-pressure regulators have supplemented one of the pop valves in some new plants. This affords much greater relief capacity per dollar invested and results in smoother operation.

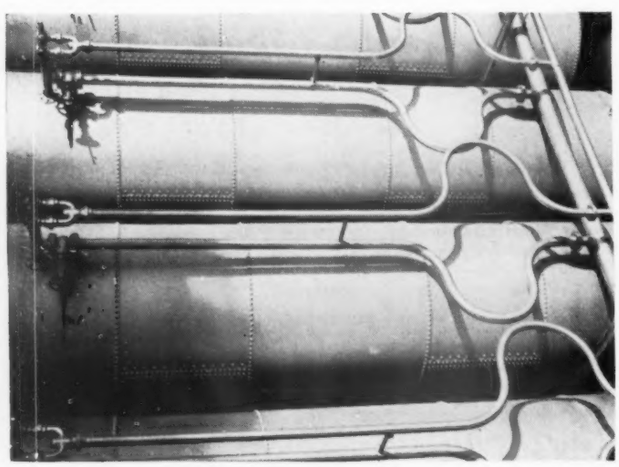
## Put Pipes Above Ground

Pipe corrosion is one of the greatest maintenance items in the gasoline plant and is a definite hazard. For this reason as many pipelines as possible should be above ground, even if foundations have to be raised. This provides for detection of leaks, ease of maintenance, and tracing of flow. Expansion and contraction due to temperature and free movement due to earthquake shocks is more readily permitted. Where pipes are below the ground they should be in concrete pits, baffled at intervals to prevent spread of a possible fire, and liquid drains provided.

Not only vapor and explosion-proof electric wiring and fittings are necessary but flashlights also should be vapor-proof. Three-wire extension cords for drop lights and electrical tools should be used with special receptacles and plugs. The third wire grounds the tool and prevents injury due to short circuit. Where extension cords are used for lighting the interior of pressure vessels, the committee strongly recommends the use of a six-volt light circuit obtained from a special transformer.

Electric lamps should not be screwed in or out of sockets while the circuit is closed. A new type of cord plug locks in place in the socket until the circuit is opened. Do not use electric drills for drilling into lines containing gas or gasoline vapor. The committee sug-

*Gilmore-Dabney, Inc.



Flexible storage tank connections are better able to withstand earthquake shocks

gests that operators give more consideration to pneumatic tools for plant maintenance.

Static electricity can be built up by playing a stream of water on the interior of a tank. The hose nozzle should, therefore, be grounded to the tank just as provision is made for grounding trucks at loading racks. Truck and motor car engines should also be made as vapor-proof as possible and the possibility of short circuiting and sparking guarded against. This danger is reduced by use of low tension magnetos with high tension coils as near as possible to spark plugs.

In considering the hazards of welding, the following facts are pertinent. It requires from 5 to 15 per cent of natural gas to cause an explosion with air, but the normal gasoline range is as low as 1½ to 6 per cent. The higher the gravity of the product, the lower the explosive range. A gallon of gasoline of approximately 35 cubic feet when vaporized, will render about 2000 cubic feet of air highly explosive. Gasoline vapor is over twice as heavy as air and consequently, if weather conditions are favorable, will travel quite a distance close to the ground. The rate of flame propagation is so high that anyone standing between the point of ignition and the bulk of the liquid is liable to be seriously burned.

A case of this kind happened some time back at Signal Hill. A break occurred in a gasoline line and gasoline vapors travelled in a circuitous route to a boiler fire box some 250 feet away in a direct line. The vapors were ignited and flashed back to the break and the man who was working off to one side, not in a direct path between the boiler and the line break was so severely burned that he died within 24 hours.

## Use Steam Before Welding

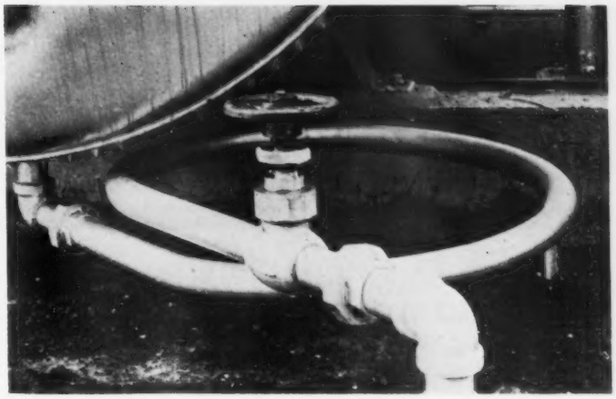
When tanks are to be repaired by welding, they should be steamed free of vapors for two hours or more depending on the type of vessel and the vapor test and should be passing through the tank all the time welding is in progress. Special precautions include presence of carbon dioxide extinguishers and water hoses, wet sacks for covering places where gasoline is liable to escape, and a spray of water for falling sparks from the torch.

When welding to lines or vessels, operations do not need to be disturbed as a hot tap can be made. Gas lines must be blanked off or if this cannot be done, pressure at the point of welding must be reduced by hot tapping on both sides and blowing gas to air. The important thing is that the pressure must be as near atmospheric as possible. Most valves leak slightly and not too much reliance should be placed on them to cut off gas from welding operations.

Leaks in pressure lines are dangerous and should be promptly attended to. The committee recommends the following method. Have on hand patches cut from pipes ranging from two to twelve inches in diameter. Use coiled asbestos rope with shellac in place of a gasket and jack a patch on to the pipe with jack and chains. Weld the patch on the pipe when convenient. For finding leaks in vacuum lines a stethoscope is useful. The sound of the gas being sucked in can often be heard for some distance.

Storage tanks should be so equipped that overfilling of one tank will provide an overflow into one or more of the others, but a 10 per cent vapor space should be maintained in the tank at all times. Self-closing spring loaded valves should be used for drawing water off at the lowest point of the tank. Area around storage tanks should be graded so that any leak of gasoline can be drained. Although some city ordinances require walls around storage tanks to hold 120 per cent of their capacity, the hazard caused by allowing high vapor pressure gasoline to accumulate is very great and this should be done only if there is no other safe way to handle the product. For after all it is easier to remove the fuel than to fight the fire.

Permanent overhead water sprays controlled by one quick opening master valve to keep tanks cool in case of fire is one means of protection. Each tank should have two or more nozzle type spring loaded safety valves and at least one vacuum relief valve. Frangible discs or safety heads may be used also to supplement the safety valves in case of rapid rise of pressure. Released vapors should be removed to a safe place.



Safe practice in localities where earthquakes may occur is the provision of flexible connections which will withstand the shock, such as this 360-degree horizontal bend

While the work of various codes covering equipment standards has taken a big load off the minds of natural gasoline men, regular inspection of equipment for corrosion and mechanical defects cannot be overstressed. Maintenance of all first aid and fire fighting equipment on an efficient basis is essential. In the laboratory fires should be eliminated as much as possible by having laboratory sinks with vapor tight covers for disposal of gasoline samples. An eighth-inch pipe connected to plant vacuum lines will remove all vapors. Good housekeeping will also help to reduce the fire hazard and allow greater freedom for fighting fires. When bleeding pressure vessels, vapor hazards can be reduced by using two lines, one a main line to carry away the product and the other a small one for sight drainage. Explosions should be prevented by regular draining of air compression systems and care should be exercised in introducing explosive materials into vessels partially or wholly filled with air.

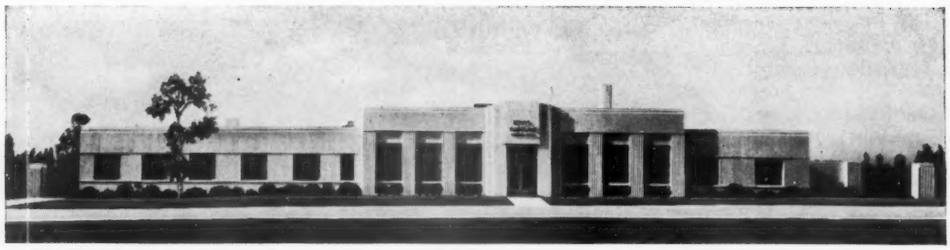
Finally, the influence of the well trained operator should not be overlooked. It is here again that education comes in, because after all practically everything in the plant depends more or less on the human element. The more efficient this element becomes, the nearer will we approach ideal safety conditions.

## Appoints District Committee

W. H. Meier, The Atlantic Refining Co., Dallas, has been appointed chairman of the American Petroleum Institute's Central Committee on District Activities. L. L. Aubert, Bankline Oil Co., Los Angeles, was named vice chairman, and C. A. Young, A.P.I., Dallas, secretary.

Members of the committee include: H. C. Pyle, Union Oil Co. of Cal., Los Angeles; D. T. Ring, Preston Oil Co., Columbus, Ohio; C. H. Keplinger, Shell Oil Co., Wichita; Christy Payne, Jr., Peoples Natural Gas Co., Pittsburgh; N. M. Hutchinson, Cities Service Oil Co., Bartlesville; W. S. Morris, East Texas Engineering Assn., Kilgore; John R. Suman, Humble Oil & Refining Co., Houston; E. L. Adams, General Petroleum Corp. of Cal., Los Angeles; C. R. Weidner, Sinclair Refining Co., Independence, Kan.; R. E. Donovan, Standard Oil Co. of Cal., Los Angeles; and George P. Bunn, Phillips Petroleum Co., Bartlesville.

**DR. E. R. LEDERER,** president of Bradford Oil Refining Company, Bradford, has been named vice-chairman of the Central Committee on Measuring, Sampling and Testing Natural Gas and Natural Gasoline of the American Petroleum Institute's Division of Production.



Ethyl Gasoline Corp.'s new San Bernardino engineering laboratory

# Automotive Engineers Visit New Ethyl Laboratories

One of the features of the World Automotive Engineering Congress' recent trip across the United States was a visit at the new engineering laboratories of Ethyl Gasoline Corp. at San Bernardino, Calif. The new institution will supplement the work of the Detroit laboratories.

The new laboratory is within easy driving distance of a variety of topography and climatic conditions probably not excelled in this country, it is said. Good roads are available at elevations of from 200 feet below to 7000 feet above sea level. On one road the elevation changes almost 6000 feet in 35 miles, 12 per cent grades occurring at some points. The Muroc Dry Lake on the Mojave desert is 12 miles long and, because of its flatness and smoothness, permits indefinitely sustained speeds as high as engines are capable of producing. Extremes of temperature and humidity characterize other parts of the region.

Besides having apparatus for conducting tests with automobiles, farm tractors and commercial vehicles, the laboratory is equipped for inspection of gasolines. Co-operative Fuel Research engines are used for measuring the anti-knock value of gasoline. In another room distillation characteristics, vapor pressure, gum and sulfur content, of gasolines are determined. These are but a few of the tests that are made at the new plant.

Prior to the completion of the new laboratory, test vehicles had already been operated a total of about 2,000,000 miles in the San Bernardino region under the direction of the Ethyl research staff. These vehicles varied from popular priced passenger cars to a fleet of trucks and trailer units of 60,000 pounds gross weight capacity. One of these units has been driven 250,000 miles, consuming about 72,000 gallons of gasoline. The results of some of the test work at San Bernardino, soon to be announced, are expected to be of great value to large fleet owners in increasing pay loads, speeding up schedules, and lowering operating costs, according to Earl Bartholomew, director of engineering research.

## Fletcher Oil Co. Builds Cracking And Polymerization Plant

Fletcher Oil Co., Inc., 530 W. Sixth St., Los Angeles, is building a single-coil, Dubbs cracking unit and a non-selective U.O.P. catalytic polymerization unit near Wilmington, Calif.

The cracking unit has a rated capacity of 1100 barrels a day of gas oil or 1700 barrels a day of fuel oil. The polymerization unit has a rated capacity of 500,000 cubic feet of gas per day. Both units are designed to allow for future increase in capacity.

The company is going to great lengths to prevent corrosion. Chrome moly tubes are used in the heater and the principal piping and valves. The reaction chamber and flash chamber will be lined with corrosion-resisting alloy, as well as the lower section of the fractionating column. The hot oil pump will have chrome alloy metal block and stainless steel plungers.

The Fluor Corp., Ltd., is the contractor. Universal designed the unit and furnished the specifications. Fluor furnished the drawings and is handling the construction.

D. S. Fletcher is president of the company, F. O. Fletcher, secretary, and A. R. Hudgins, treasurer.

The Fletcher company already has a skimming plant at Los Angeles.

### Grease Meeting Announced

The National Lubricating Grease Institute will hold its seventh annual convention in the Stevens Hotel, Chicago, Oct. 2 and 3. The announcement is made by President M. R. Bower.

Dr. Gustav Egloff, Director of Research of Universal Oil Products Co., was a guest of the Focal Exhibit in Science and Education, at the New York World's Fair, May 26, at the personal invitation of Grover Whalen.

### Builds Gas Purification Plant

The Columbian Carbon Co., Charleston, W. Va., will build a gas purification plant in Kanawha County, W. Va. The plant is designed to remove hydrogen sulfide from 30 million cubic feet of sour gas daily. Girbotol process will be used.

J. F. Pritchard & Co. of Kansas City, Mo., is building the plant for Columbian. It is planned to have the plant completed within about two months.

## Diesel Fuel Volatility

(*Continued from page R-256*)

high quality fuels but the gain is small compared to that which might be obtained by minor design changes.

Variations in speed and load conditions encountered in the normal operation of engines are sufficient to produce large increases in ignition delay and extensive variation in combustion pressure. The extent of such variations may be partially controlled by use of higher than average quality fuels. The control so obtained is not sufficient, however, to warrant the increased cost of fuels of special properties needed. The test data obtained indicate that the engine should be so operated as to maintain a reasonably high combustion chamber temperature. Operation at light loads should be carried out with cooling liquid temperatures of 160° F. or higher. High speeds with very light loads should be avoided because of the tendency for smoking and misfiring.

The diesel engine cycle is well suited fundamentally to high power output. Every move toward higher combustion chamber temperatures seems to improve the combustion process, and renders the engine less critical of fuel quality. If this trend continues without great changes in the injection process, it can be safely predicted that very high quality fuels as determined by cetane number and physical characteristics should take a less important place in future diesel fuel sales.

# New Patents

*Compiled by R. E. Burnham, patent and trade-mark attorney, 511 Eleventh Street, NW, Washington, D. C., from whom copies may be obtained at rate of 25c each. State number of patent and name of inventor when ordering.*

## May 16, 1939

### REFINING

*Method of producing hydrocarbons suitable for motor fuel*—Carl C. Chaffee, Ponca City, Okla., assignor to Continental Oil Co. Filed April 19, 1935. No. 2,158,353.

*Separation of wax from oil*—Louis P. Evans, Beacon, N. Y., assignor to Texas Co. Filed Feb. 24, 1937. No. 2,158,358.

*Manufacture of lubricating oil*—Francis X. Govers, Vincennes, Ind., assignor to Indian Refining Co. Filed Mar. 29 and Sept. 16, 1932. Nos. 2,158,360 and 2,158,361.

*Oil refining system*—William T. Hancock, Long Beach, Calif. Filed Mar. 4, 1938. No. 2,158,365.

*Dewaxing with evaporative cooling*—Edwin C. Knowles, Beacon, N. Y., assignor to Texas Co. Filed Mar. 3, 1937. No. 2,158,370.

*Vacuum steam distillation of heavy oils*—Edward G. Ragatz, Los Angeles, Calif., assignor to Union Oil Co. (Calif.) Filed Jan. 4, 1936. No. 2,158,425.

*Process for cracking oils*—Will K. Holmes, Tulsa, Okla., assignor to Texas Co. Filed July 25, 1928. No. 2,158,504.

*Production of motor fuel*—Harold V. Atwell, White Plains, and Malvin R. Mandelbaum, New York, N. Y., assignors to Process Management Co. Filed Jan. 9, 1936. No. 2,158,559.

*Treatment of gaseous hydrocarbons for production of liquid aromatic hydrocarbons*—Robert M. Isham, Okmulgee, and Max R. Ryan, Tulsa, Okla., assignors to Danciger Oil & Refineries, Inc. Filed Aug. 8, 1935. No. 2,158,582.

*Dewaxing oil*—Donald E. Carr, Long Beach, and Maner L. Wade, Naples, Calif., assignors to Union Oil Co. (Calif.) Filed Aug. 26, 1935, and Dec. 15, 1936. Nos. 2,158,671 and 2,158,672.

*Method for treating oils*—Sumner C. Campbell, Long Beach, Calif. Filed Sept. 3, 1935. No. 2,158,690.

*Conversion of hydrocarbon oils, and process for hydrocarbon oil conversion*—Joseph G. Alther, Chicago, Ill., assignor to Universal Oil Products Co. Filed Nov. 30, 1936. Nos. 2,158,811 and 2,158,812.

*Conversion of hydrocarbon oils*—Kenneth Swartwood, Chicago, Ill., assignor to Universal Oil Products Co. Filed Feb. 15, 1937. No. 2,158,840.

*Hydrocarbon oil conversion*—Carbon P. Dubbs, Wilmette, Ill., assignor to Universal Oil Products Co. Filed Mar. 7, 1927. No. 2,158,962.

*Motor fuel*—Euphime V. Bereslavsky, New York, N. Y. Filed Mar. 4, 1937. No. 2,158,050.

*Lubricant*—James H. Werntz, Wilmington, Del., assignor to E. I. du Pont de Nemours & Co. Filed April 24, 1936. No. 2,158,096.

*Catalyst (for use in conversion of crude-oil refinery gases)*—James R. Rose, Edgeworth, Pa. Filed Nov. 22, 1937. No. 2,158,154.

*Lubricating oil*—Charles C. Towne, Beacon, N. Y., assignor to Texas Co. Filed April 30, 1936. No. 2,158,389.

*Inhibited motor oils*—Raphael Rosen, Elizabeth, N. J., assignor to Standard Oil Development Co. Filed May 8, 1936. No. 2,158,668.

*Process for recovery of essential oils*—Charles D. Barnes, Long Beach, and William A. S. Wright, Los Angeles, Calif., assignors to Union Oil Co. (Calif.) Filed Feb. 20, 1937. No. 2,158,670.

*Asphaltic coating and method of protecting pipe lines with same*—Lawton R. Beckwith, San Pedro, Calif., assignor to Union Oil Co. (Calif.) Filed Dec. 2, 1933. No. 2,158,772.

★ ★ ★

## May 23, 1939

### REFINING

*Production of valuable hydrocarbons and their derivatives containing oxygen*—Franz Duftschmid, Eduard Linckh, and Fritz Winkler, Germany, assignors to I. G. Farbenindustrie. Filed Nov. 17, 1936. No. 2,159,077.

*Production of hydrocarbons from carbon monoxide and hydrogen*—Johannes Eckell and Gerhard Ritter, Germany, assignors to I. G. Farbenindustrie. Filed March 5, 1936. No. 2,159,140.

*Production of valuable liquid hydrocarbons*—Hans Haeuber and Josef Hirschbeck, Germany, assignors to I. G. Farbenindustrie. Filed June 20, 1938. No. 2,159,148.

*Production of motor fuels*—Martin Mueller-Conradi and Robert Uloth, Germany, assignors to I. G. Farbenindustrie. Filed Dec. 24, 1935. No. 2,159,175.

*Method and plant for hydrogenation of carbonaceous substances containing sulphur*—Paul Marsecaux, Nancy, France. Filed May 26, 1936. No. 2,159,281.

*Process for breaking oil-in-water type petroleum emulsions*—Charles M. Blair, Jr., Webster Groves, Mo., assignor to Tret-O-Lite Co. Filed Dec. 13, 1937. No. 2,159,312.

*Process for breaking oil-in-water type petroleum emulsions*—Charles M. Blair, Jr., Webster Groves, Mo., and Charles C. Rogers, Jr., San Antonio, Tex., assignors to Tret-O-Lite Co. Filed Dec. 13, 1937. No. 2,159,313.

*Process for concentrating hydrocarbons*—Frederick E. Frey, Bartlesville, Okla., assignor to Phillips Petroleum Co. Filed June 27, 1936. No. 2,159,434.

*Process for treating mineral oils*—Wilbert B. McCluer and Merrell R. Fenske, State College, Pa., assignors to Pennsylvania Petroleum Research Corp. Filed June 23, 1934. No. 2,159,444.

*Process for cracking mineral oils*—Hugh M. Corrough, Tulsa, Okla., assignor to Power Patents Co. Filed Nov. 2, 1934. No. 2,159,502.

*Apparatus for distilling liquids*—Albert R. Nevitt, Montreal, P.Q., Canada. Filed Sept. 24, 1936. No. 2,159,566.

*Process for batch distillation of liquid mixtures*—Willem J. D. van Dijck, The Hague, Netherlands, assignor to Shell Development Co. Filed March 8, 1937. No. 2,159,621.

*Method for promoting and controlling polymerization of hydrocarbon gases*—Percy A. Maschwitz, Chicago, Ill., assignor to Pure Oil Co. Filed May 31, 1935. No. 2,159,746.

### MISCELLANEOUS

*Wax*—Frederick H. MacLaren, Calumet City, Ill., assignor to Standard Oil Co. (Ind.) Filed Sept. 25, 1937. No. 2,159,218.

*Manufacture of lubricants*—George M. McNulty, Cranford, N. J., and Elmer W. Adams, Hammond, Ind., assignors to Standard Oil Co. (Ind.) Filed April 19, 1937. No. 2,159,220.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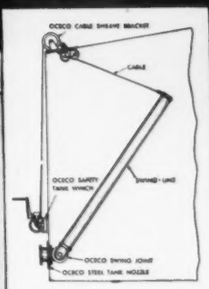

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# *Activities* OF EQUIPMENT MANUFACTURERS

**TANK GAUGE.** A new gauging device operating on a new principle is announced by Southwestern Engineering Co., 4800 Santa Fe Av., Los Angeles. One style of the gauge consists of a triangular shaped tube which extends vertically the liquid depth. The normal liquid surface within the tube is viewed from the top of the tube. Diagonal slots in the walls of the tube allow breaks in the liquid's natural meniscus to firm points in the normal light reflection from the liquid surface. These points travel laterally across the walls of the tubes with changing depth of liquid and the extent of travel is read on evenly grooved graduation lines.

The accompanying illustration is a top view looking down into the tube. Natural light or a flashlight may be used in making readings. There are no moving parts. To give a high degree of accuracy and to form a desirable combination of the total volume or depth and units thereof, the graduations are grouped into separate scales and point reflections read in tens, hundreds, thousands, or other combinations. Scales may be calibrated in any units: feet and inches, barrels, gallons, etc. Other gauge tubes are four sided or circular, all operating on the same principle. Models have been developed for pressure containers as well as open vessels.

* * *

**WELDING ELECTRODE**—A new arc welding electrode, "Stainweld C", of the 18-8 type, having 3½ per cent molybdenum has been developed by The Lincoln Electric Co., Cleveland. A coating is provided to prevent oxidation of the weld metal and to keep the analysis of the deposited metal virtually the same as the parent metal.

* * *

**STEAM GENERATOR** — A steam generator no larger than an incandescent lamp and similar in appearance, has been put on the market by Westinghouse Lamp Division, Bloomfield, N. J. It is made in 1, 1.5, and 2-kw. sizes, with capacities up to 5.7 pounds of water per hour. It can superheat steam to 350° F., it is said.

* * *

**FREQUENCY CONTROLLER** — An industrial type automatic frequency controller for isolated generating plants is announced by Leeds & Northrup Co., 4934 Stenton Ave., Philadelphia. The Micromax frequency indicator and recorder with the automatic controller are combined in one case. A new 8-page catalog, N-56-61, describes the equipment.

**JOHNS-MANVILLE CORP.** jobholders got 32 cents out of every dollar received from the company's customers in 1938, stockholders got 2 cents and one cent was put aside as a reserve, according to the company's annual report to employes issued recently by President L. H. Brown.

Striking a new note in humanizing and simplifying its corporate statement, a humorous home-like figure symbolic of the J-M sales dollar has been created and he frolics through the report, telling the story of the company's business in simple fashion.

Pointing out that the company's research program went forward with a staff of 127 people, the report estimated that more than 40 per cent of employment today in J-M plants results from the sales of products that come from the company's research, development and expansion program of the past 10 years.

* * *

**Paul A. Condit** joined The Cooper-Bessemer Corp., Mt. Vernon, Ohio, recently as a control engineer. Condit was a development engineer with Mason-Neilan Regulator Co. since 1937 and had spent five years with Pure Oil Co. where he became assistant chief engineer with duties as electrical and control engineer for all refineries of the company.

* * *

**THREAD CUTTING** — A new method for cutting tapered threads is announced by the Landis Machine Co., Waynesboro, Pa. The method employs a threading head redesigned so that as the die head advances under cut the end of the work will contact the reamer and thus cause the chasers to recede to produce tapered thread. The reamer mechanism is used to establish the total thread length. Since this is not connected to the size adjustment mechanism, it is possible to adjust the die head for size without affecting the thread length. By using a semi-receding action rather than a full receding action, the necessity for using a leadscrew to propel the head forward is eliminated.

* * *

**J. S. Warren** has been elected president of Maloney Tank Mfg. Co., Tulsa, succeeding the late Harry Ross. Other officers are **George J. Maloney,** Long Beach, Cal., vice president, and **J. C. Highfill,** Tulsa, secretary. Mr. Warren has been an executive of the company since 1914 and advances to the position from that of vice president and treasurer. He will continue as general manager of the company.

* * *

**J. S. Fluor,** vice president Fluor Corp. left Los Angeles June 5th for a two-month inspection trip throughout the Mid-Continent and Eastern areas in connection with the company's activities. Accompanied by Mrs. Fluor, and son, J. S. Fluor III, he will spend several weeks in New York City with "incidental" visits to the World's Fair.

* * *

**SUBMERGED PUMP**—A submerged pumping unit for installation inside pressure or vacuum vessels or in small auxiliary receiving tanks attached to storage tank or working chamber is announced by the Warner Lewis Co., 230 E. Third St., Tulsa. Among its features are said to be simplified installation, elimination of floor space and concrete footings, reduced stuffing box leakage problem and hazard, ability to handle all classes of material from liquid gases to heaviest stocks, and increased pump efficiency because it is fully submerged and has a large flooded suction opening.

Small farms, like this one near Baltimore, Md., offer an expanding market for tractors

# Tractors on Small Farms Open New Market for Oil

**Recent developments in tractor manufacturing, especially the new low-cost one-plow tractor which comes within purchasing power of small farms, promises to add a billion gallons within the next few years to the oil industry's already large farm market.**

**In this article, and others in this issue, N.P.N. analyzes the extent of the farm tractor market for fuels, lubricants, spark plugs and tires.**

OLD "Dobbin's" place in front of the plow on the small farm—his last stronghold in American industry since he has been generally replaced on the milk routes—is now threatened by the new low-cost tractor, and as a result the oil industry faces a tremendous growth within the next few years in an already large demand for fuels and lubricants with the mechanization of the smaller farms.

The farm tractor has come a long way from the cumbersome steam machines which broke sod on the western prairie about eighty years ago. While powerful all-purpose tractors began to replace "Dobbin" on the larger farms a dozen years ago, he was not jeopardized on the smaller farm of 100 acres or less, which could not economically use these larger machines. Now, recent developments in the tractor industry, principally the one-plow, low-cost tractor for the small farm, indicate that more and more farms will replace the horse with tractor power, with tractors operating a larger number of hours each year.

Each year the farmer finds more work that can be handled by his tractor which increases the oil farm market through more hours of annual service. Other developments have been a turning to the truck industry for tractor engines, the use of rubber tires, and the adding of features for the comfort of the tractor operator.

It is estimated that there were 1,500,000 tractors on farms last year, a gain of 71 per cent in the eight years since the 1930 federal census when 920,021 were counted.

Within the next few years there probably will be an additional 1,000,000 tractors on farms, which will add

about a billion gallons annually to the petroleum industry's farm market, according to tractor authorities.

The small tractor "is a development of more importance to the petroleum industry than any changes in the type of engine or in the fuels they burn, because it means vastly increased consumption of all available fuels on the part of the farmers," one tractor manufacturer pointed out.

OF THE country's 6,500,000 farms about 42 per cent are under 100 acres, and this is the market being tapped by the one-plow, low cost tractor. The small tractor is designed to replace from two to six horses or mules, costs less to purchase and to operate than four horses, and can completely replace horses on farms under 100 acres as well as perform work that cannot be done by horses.

About 5,000,000 farms are still operated by animal power, one tractor manufacturer estimates, as tractors have been too large and too expensive, with more power than can be profitably used on the average farm, this tractor manufacturer stated.

"There is no question," he added, "but what all farmers now using animal power are keenly desirous of switching to tractors, when suitable equipment is available to fit their needs in the way of price, size and power, and now that such equipment is available, it is expected that these farmers will displace their animal power with tractors as rapidly as they find it possible to do so."

Three tractor manufacturers now have brought out models selling for around $500 f.o.b. the factory, placing tractors within the purchasing power of millions of small farms. One of the "Big Three" automobile manufacturers has also announced plans for a lightweight tractor and plow combined, which will be priced comparatively low.

More extensive use of tractors for field and belt work (using tractor as a stationary engine) is another factor in increasing the farm market for petroleum products. The number of horses and mules has been dwindling, but only a few farms have completely abandoned animal power.

The general all-purpose tractor, capable of performing all field work from plowing through harvesting, came in about 1925, but many tractors still are used in the fields only for preparing the soil. Then the tractor is laid up, and horse-drawn implements are used for planting, cultivating and harvesting. An oil company official in a 55-mile drive in Iowa recently counted over 100 horse-drawn cultivators in the fields to nine tractor-drawn cultivators.

The combine for harvesting wheat makes a dramatic picture of power farming, and small combines are on the market, costing around $500 or less, that cut a 40 to 72-inch path. Yet, corn is still one of the leading crops, and less than one per cent of the corn crop is harvested by mechanical power. In the South there is the great cotton crop, still without a successful mechanical picker, ruled by hand labor.

The farmer generally buys plows to go with his tractor, and continues to use the old horse-drawn implements for other field work until this equipment wears out or the farmer is financially able to replace it.

There has been some talk of smaller farmers co-operating in the purchase of implements. Several farmers would band together, each buying one particular implement, then exchange them in doing each other's work. The idea seems sound in theory, but has proved weak in practical application. The farmer is quite an individualistic person and when he wants work done he wants it done right now, not when his neighbor can get around to it.

Several implement manufacturers have considered increasing the amount of tractor service in the field by selling a combination deal. A tractor and a set of implements would be sold in a combination to the farmer at one price. The implement dealer would have one sale and one delivery to make. The price to the farmer for the combination deal would be about two-thirds the price of the various items when purchased separately.

Additional work requiring belt power in the farm yard, such as sawing wood, filling the silo or running a hammer mill, is also contributing to the increase of the tractor's annual hours of service. Scientific stock feeding, for example, has promoted the use of the hammer mill for grinding, adding about 200 hours of service a year on the tractor.

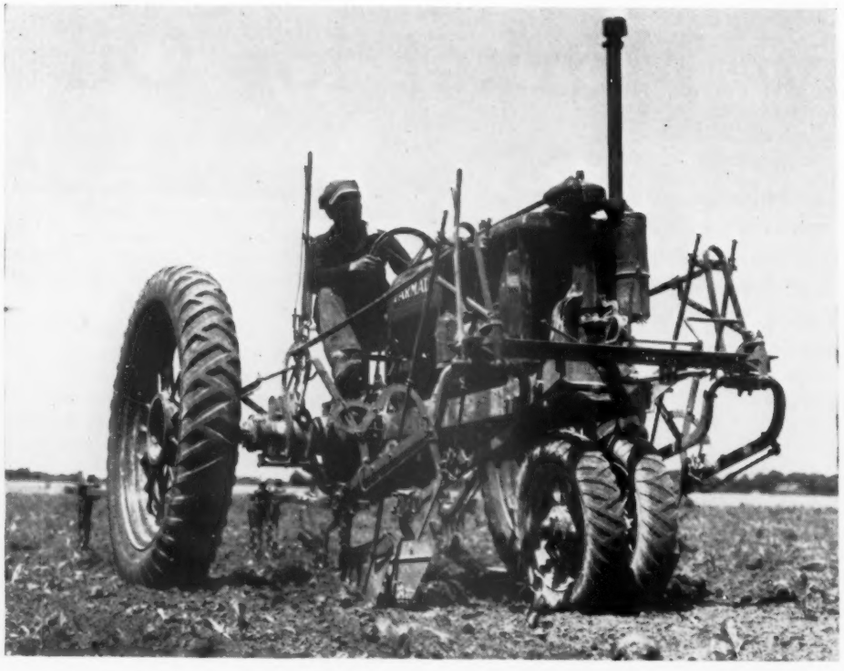
THE diesel tractor has found its niche in farms of large acreage. The high first cost of the diesel-powered tractor, as compared to the gasoline powered tractor, requires a minimum of about 3000 hours of annual service. About 95 per cent of all farm tractors operate around 1000 hours or less a year. Big farms make extensive use of the Diesel powered tractor possible, so the annual hours of service pile up to balance off the higher first cost.

The crawler type tractor also used in farming has an advantage over the wheel type tractor in terrace farming in mountainous country and in the irrigated fields where there is cross field cultivation and the tractor has to run over ditches and sumps.

Number of tractors on farms was 1,577,233 as of July 1, 1938, the trade journal "Implement & Tractor" estimates. The bulk are in the Central West where there are 870,439, or 55 per cent of the nation's total, concentrated in 11 states. These states are Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, North and South Dakota, Iowa, Nebraska, and Missouri.

The West Coast has about 6 per cent of all farm tractors, a total of 91,233 in California, Washington and Oregon. The biggest eastern market is in New York state and Pennsylvania, with 113,390 tractors, or about 7 per cent of the total.

Among individual states Illinois ranks first with 139,580 tractors, while



Diesel-powered tractors are preferred by many farmers engaged in large-scale operations

Iowa is second with 129,962 and Texas, third, with 102,683.

The term "farm tractor" naturally suggests a rural community, remote from big city offices and pavements, yet the estimate of tractors last year by counties shows there were plenty of farm tractors, figuratively speaking, right next to those big city offices. Illinois has 102 counties, but tenth in tractor population is Cook County, which has its court house near the center of Chicago's loop. Following are the estimates for some counties containing big cities, on the estimated tractor population last year:

| City | County | Tractors in the county |
|---|---|---|
| Des Moines | Polk | 1,765 |
| Indianapolis | Marion | 1,452 |
| Chicago | Cook | 2,425 |
| Detroit | Wayne | 1,335 |
| Minneapolis | Hennepin | 1,132 |
| St. Paul | Ramsey | 1,771 |
| Kansas City | Jackson | 821 |
| Cleveland | Cuyahoga | 609 |
| Cincinnati | Hamilton | 801 |
| Milwaukee | Milwaukee | 1,093 |
| Pittsburgh | Allegheny | 1,050 |

New York county, home of New York City, is mainly asphalt pavement, and has only nine tractors. Suffolk county, out on Long Island, with its vegetable farms, had an estimated 1486 tractors.

Latest mechanical development, following introduction of the high compression engine in 1935 which operates on "regular" grade of gasoline, is in the tractor industry turning to the automotive industry for engines. One tractor manufacturer uses an automotive type engine, and another manufacturer last year brought out a model powered by a six-cylinder engine produced by one of the prominent truck manufacturers.

The tractor manufacturer has some advantages in buying a modified truck motor complete with starter and generator, instead of making his own motors. Service on the truck motor in this model is available to the farmer at all of the tractor manufacturer's dealers and also at about 12,000 dealers of the truck manufacturer.

The tractor industry so far has not operated on the yearly model basis, as has the automotive industry. The tractor has been regarded as capital goods, not consumer goods. But changes in the future may come more often than in the past through developments such as manufacturers, making their own engines, improving their products to meet periodic improvements offered by the truck engine manufacturer.

Better steels and alloys have been predicted for the engine, for better performance and lower operating costs. Better gear for transmitting power from the engine to the wheels is forecast. With all such improvements it is predicted that costs will be lowered so the farmer will get a better tractor at a lower price, just as the automotive industry has given the public more car for less money and still better cars are turned out each year.

Two manufacturers have made changes in their recent production. One has a modified truck motor of latest design, and the other uses flat instead of crowned fenders, a new radiator grille, new steering wheel and seat, new steels in the engine, and automotive type self-energizing brakes.

Changes are being made also in the features of comfort for the operator. Deluxe cab jobs now are offered by two manufacturers to protect the operator from the weather. One of these models has a radio, windshield wipers, speedometer and a heater, with a road speed of 45 miles an hour. The manufacturer last fall had the company salesmen put up their automobiles and cover their territory driving the deluxe model tractors.

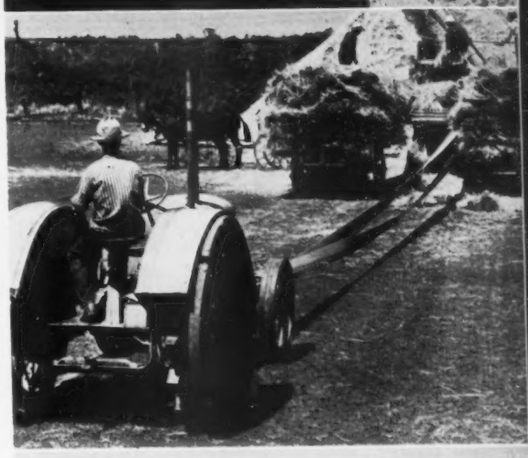
The farmer spends many hours on his tractor out in the field, and from the standpoint of time there is more sense to a radio on the tractor than there is in the city man's car used mainly between his home and office.

These features of comfort, including the radio, have a social significance. The farmer wants to keep his children on the farm, so the comforts and conveniences of living on the farm are in direct competition with those of the city. Operating a comfortable, easy riding tractor and listening to the radio broadcast of the World Series or football games, may be more attractive to the farmer's son than selling neckties over the counter or sweating in a factory in the city.

MOST tractors still have a top speed in high gear of five or six miles an hour. But several models now have a top speed of 25 miles an hour, usable when the tractor is operated on the highway from one farm to another or pulling a load. The tractor's speed in the field is still limited to the ability of the attached implements to cover the ground.

To the oil marketer, supplying the fuels and lubricants, improvements in tractor engine performance may be seen as a reduction in petroleum consumption. On the basis of per hour operation this may be true, through greater fuel economy and longer oil service. However, those who have considered this possibility are not perturbed. They reason that better performance may mean less fuel and lubricant consumption per hour but lower operating costs will enable the farmer to operate the tractor more hours per year. On an annual hours of service basis the farmer would be a better customer for oil products.

Figures on the number of small farms may be misleading as to the potential market for the low-cost, one-plow tractor, some authorities point out. For example, in the South there are many small farms consisting of "20 acres, a nigger and a mule." Again, there is the question of tennant farmers and their ability to buy even a low-priced tractor. Another angle is that some small farms near cities,



# TRACTORS ON SMALL FARMS OPEN NEW MARKET FOR OIL

such as truck farms, already have tractors out of proportion to their size.

But the general overall picture is conceded to indicate a large increase in farms with tractors, now that low-priced models are coming on the market.

While the tractor is a modern power plant for the farm, its ancestry dates back well into the past century when the big steam tractors were a vital factor in breaking the sod of the western prairies.

The first successful steam tractor, according to the issue of "Prairie Farmer" for May 3, 1860, had just plowed 70 acres in Illinois. The tractor in those days was so cumbersome it had little power beyond that required to move its own weight. So the tractor was parked on one side of a field, with a windlass on the rear, and while the tractor stood still the windlass pulled the plow through the ground by cable. Then the tractor moved to a new location and repeated the operation.

The first successful modern tractor is credited to C. W. Hart and C. H. Parr, the Hart-Parr tractor developed shortly after the turn of the century. They are credited also with coining the word "tractor."

While students at the University of Wisconsin Hart and Parr got the idea for a tractor and built a model. Capital could not be obtained around Madison so they moved out to Charles City, Iowa, and began building their two-cylinder tractors. In 1903 they built 15.

The early tractor was designed for gasoline, but this fuel was not widely marketed in those days so the tractor industry turned to kerosine, although the gasoline-burning tractor was used to some extent when the fuel could be obtained.

The next milestone was Henry Ford's Fordson in 1916, which was built in line like the automobile, transmitting power directly back to the rear wheels. Earlier models had the engine set crosswise.

Some deluxe tractors with cabs and a 45-mile road speed have many conveniences of the automobile — windshield wiper, radio and heater

The World War really put the tractor on the map.

Manpower was scarce and foodstuff was wanted for consumption at home and abroad. The tractor took power to the farm, but still mainly for plowing and driving a threshing machine off the belt. The industry thrived. There were some 600 tractor manufacturers, 54 in Minneapolis and St. Paul, alone. Now there are 20 farm tractor manufacturers.

The next big step came in 1925 when International-Harvester brought out the general all-purpose tractor. For the first time it was possible for the tractor to be in a position to replace completely the horse and mule. The tractor now was built high enough to straddle young crops, there were the two drop front wheels to steer down the rows. It could do everything in the field from plowing to harvesting.

The rubber tire then came on the market in 1932, and in 1935 Oliver brought out a high-compression engine, known as the "70" model named after 70 octane gasoline.

## Farm Tractors by States

*(An estimate of the number of tractors on farms as of July 1, 1938, compiled by Implement and Tractor)*

| | | | |
|---|---|---|---|
| Alabama | 10,127 | Nevada | 452 |
| Arizona | 5,047 | New Hampshire | 1,597 |
| Arkansas | 14,320 | New Jersey | 12,786 |
| California | 65,172 | New Mexico | 5,098 |
| Colorado | 17,488 | New York | 60,745 |
| Connecticut | 4,492 | North Carolina | 20,236 |
| Delaware | 3,272 | North Dakota | 51,278 |
| Florida | 10,497 | Ohio | 82,554 |
| Georgia | 12,219 | Oklahoma | 45,540 |
| Idaho | 8,523 | Oregon | 13,381 |
| Illinois | 139,580 | Pennsylvania | 52,645 |
| Indiana | 82,272 | Rhode Island | 989 |
| Iowa | 129,962 | South Carolina | 5,981 |
| Kansas | 94,165 | South Dakota | 45,960 |
| Kentucky | 11,512 | Tennessee | 12,585 |
| Louisiana | 11,494 | Texas | 102,683 |
| Maine | 5,181 | Utah | 2,652 |
| Maryland | 12,348 | Vermont | 3,539 |
| Massachusetts | 6,104 | Virginia | 13,254 |
| Michigan | 57,671 | Washington | 12,680 |
| Minnesota | 86,288 | West Virginia | 3,641 |
| Mississippi | 15,115 | Wisconsin | 76,900 |
| Missouri | 50,525 | Wyoming | 5,394 |
| Montana | 22,840 | | |
| Nebraska | 67,449 | Total U. S. | 1,577,233 |

New lower-cost tractors and harvesters are bringing power farming within reach of hundreds of thousands of small farms

# *For all sizes*

No matter what the size of your Dubbscracking plant may be it is neither too large nor too small to install a U O P catalytic polymerization unit in order to increase the volume and improve the quality of your Dubbscracked gasoline

If you have no Dubbscracking unit you ought to put one in right away

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

This model tractor has a high-compression motor built especially to operate on "regular" grade gasoline. A booklet by the manufacturer states, "The HC (high-compression) engine makes it possible to take full advantage of the maximum power available in today's quality gasoline in the same way as today's automobile does it." (A similar model is built to operate on distillates)

# Tractor Fuel Trend Is Toward Gasoline

**Surveys indicate that farmers, especially in the Middle West, are turning more and more to regular grade gasoline as fuel for their tractors.**

**Results of these tractor fuel surveys, which also covers types of lubricants used, are told in this article.**

GASOLINE leads the field of tractor fuels, in surveys recently conducted by oil companies to determine the market for various kinds of fuel required by the expanding rural trade. Although a trend toward dieselized tractors is indicated in some sections, such as the Pacific Coast, current studies show better than half the tractor farmers are using gasoline as a fuel.

One oil company has canvassed its market of about 50,000 tractors, and results show 33.1 per cent of these units are operated on low octane gasoline, 29.6 per cent on house brand gasoline, 25.4 per cent on tractor fuel, and 11.8 per cent on kerosine. The figures are for one area only, but a farm expert who has checked similar data believes the proportions are representative of national tractor operation for the various types of fuels.

Another oil company recently made a study of fuels sold for tractor use and found 60 per cent was unleaded third grade gasoline, 23 per cent house brand gasoline, 9.1 per cent was distillate, and 7.5 per cent tractor fuel.

A national survey on tractor ownership and type of fuel used was conducted last summer by 40 farm trade publications for a company in oil industry. Questionnaires were returned from 45 states. The survey was concentrated in 18 leading tractor states which have about 83 per cent of the total number of tractors in the nation. These states are California, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Montana, Nebraska, New York, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, and Wisconsin.

Returns from 6729 farmers showed that 4228 owned 5441 tractors, or a ratio of about five tractors to four farmers. Of these tractors, 75.1 per cent were low compression and 24.9 per cent were high compression.

These farmers were asked what type of tractor they would buy, if in the market for new equipment. High compression was preferred by 15.70 per cent, low compression by 6.23 per cent, diesel by 1.23 per cent, undecided 15.94 per cent, and 60.90 per cent of the replies showed no answer to this question.

Another question was on the type of fuel used, after starting, and following are the 5061 replies:

| Type of fuel | No. of farmers reporting | Annual gallonage | Percentage of total |
|---|---|---|---|
| Regular grade gasoline leaded | 1,688 | 1,748,977 | 32.2 |
| Regular grade, unleaded | 82 | 81,620 | 1.5 |
| Premium gasoline | 165 | 132,141 | 2.4 |
| Third grade gasoline | 1,200 | 1,408,511 | 26.0 |
| Distillate | 1,281 | 1,351,746 | 24.9 |
| Kerosine | 548 | 377,867 | 7.0 |
| Diesel fuel | 81 | 323,095 | 6.0 |
| Not stated | 16 | 3,000 | 0.1 |
| Total | 5,061 | 5,426,957 | 100.0 |

Another oil company reports that tractor sales of unleaded third grade

and house brand gasolines are about the same. This company also handles a tractor fuel with a flash point of around 60, an initial boiling point of 225 and a 90 per cent distillation point at 465 degrees.

"This fuel has been quite popular with many types of tractor users, especially in the tractor which is designed for burning either gasoline or light distillate, as the lower end point and the initial bring it a little bit closer to third grade gasoline," the company reports.

"It is economical in use as its cost to the tractor user is slightly less than gasoline and it is not subject to state or federal tax. Some types of tractors will operate successfully on a heavier distillate but the demand for that type of fuel has decreased rapidly the last few years. Kerosine is used very little for tractor fuel in this territory this company reports."

Oil companies in North Dakota keep a record of inshipments of tractor fuel separate from other petroleum products. Annual reports of Northwest Petroleum Assn. show tractor fuel inshipments for 1938 of 22,987,999 gallons, a decline of 1.31 per cent, compared to 23,294,146 gallons in 1937. Inshipments in 1937 were 8.65 per cent over the 21,438,778 gallons in 1936.

THE report lists 986 bulk plants in the state in 1938, of which 732 or 74.2 per cent handled tractor fuel.

The oil industry manufactures various kinds of fuel required to operate tractors of different engine design, but improper use of fuel is the main difficulty reported. Manifold heat required to properly vaporize fuel is the fundamental difference in the burning of tractor fuel or gasoline in the tractor.

High temperatures are required to properly handle tractor fuel or kerosine. The hot manifold preheats the incoming fuel-air mixture by bringing the outgoing exhaust gases around the intake manifold. Gasoline burning tractors operate at lower temperatures. Difficulties with improper fuel can be adjusted by setting the manifold heat control to "cold" when burning gasoline, so the exhaust gases will not preheat the incoming fuel-air mixture, and to "hot" for burning tractor fuel to properly heat the incoming mixture. Spark plugs may need checking also to insure the proper type for the heat requirement of the fuel being burned.

The manufacturer of a tractor with an engine designed to operate on all fuels, states that the damper control on the manifold gives "the correct amount of heat required to properly vaporize and mix the fuel with air for an efficient burning mixture. For starting fuels, and fuels that do not require heating, the damper can be set to divert the exhaust gases directly to the exhaust pipe."

Tractors that burn tractor fuel have a gasoline fuel tank to provide fuel for starting and stopping. As soon as the engine has warmed up on gasoline the fuel is switched to tractor fuel. Before shutting off the engine the tractor is returned to gasoline so the fuel system will be filled with the starting fuel.

Some tractors have been changed over to burn high octane, house brand grade gasoline, by raising the engine's compression. In the national survey by 40 farm trade publications 73 farmers reported having high compression tractors by changing over the engine. The change-over is made by setting the manifold to the "cold" position, as in burning low octane gasoline, installing colder type spark plugs, and installing either altitude pistons or a high compression head, depending on the make of tractor, to obtain a smaller volume of space in the combustion chamber.

The word "altitude" comes from the need for a high compression ratio in high altitudes. The engine loses about 3.5 per cent of its power each 1000 feet above sea-level as the air at higher altitudes has less pressure and weight, so to compensate for this loss the compression ratio is increased.

Trend in motor oil for tractor crankcase lubrication is towards the lighter grades, as evidenced by the S.A.E. ratings listed in the Nebraska tractor tests. The agricultural engineering department of the University of Nebraska since 1920, in accordance with a state law, tests every tractor before offered for sale in Nebraska. The test covers brake horsepower, various load tests, drawbar horsepower tests, and the report gives a brief description of specifications.

The Nebraska report lists all models that have been tested since 1920 and are still in production. S.A.E. numbers have been used to designate the grade of oil since 1930, and the report from 1930 through 1938 covering 93 models shows the following number of tests for the various S.A.E. grades:

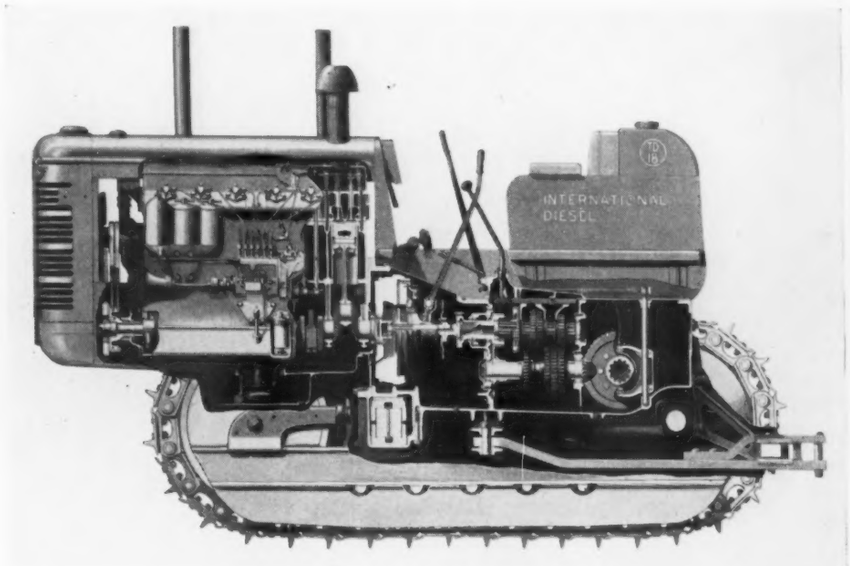
| S.A.E. | Number of models |
|---|---|
| 10 | 5 |
| 20 | 12 |
| 30 | 53 |
| 40 | 22 |
| 50 | 1 |

From 1930 through 1934 tests were made on 19 models. Ten of these used S.A.E. 40, eight S.A.E. 30, and the lone S.A.E. 50 in the whole eight years appeared in 1931. The first lighter oil than 30 came in 1935 when one model used S.A.E. 20 and two models used 20 in 1936. Following is the list of models with oils used from 1935 through 1938, after S.A.E. 20 appeared:

| S.A.E. | Number of models |
|---|---|
| 10 | 5 |
| 20 | 12 |
| 30 | 45 |
| 40 | 12 |

AN ANALYSIS of the crankcase capacities of eight models widely purchased by farmers shows that two hold five quarts, one six quarts; four, seven quarts; and one, nine quarts.

The length of service of the crankcase oil recommended by the tractor




Heavy-duty, six-cylinder, full diesel-powered tractor, featuring fuel filtering system, air cleaner, lubricating oil filtration, and 12-volt electric starting. With a rated drawbar horsepower of 70, flexible performance is provided through the six-speed transmission. While high-compression gasoline tractors have been making remarkable strides in some sections, on the Pacific Coast there has been a distinct trend toward diesels

manufacturer varies with the type of fuel used. For tractors operated on tractor fuel several of the larger manufacturers recommend draining off the oil to the level of the lower crankcase pet cock after 10 hours of operation and a complete draining at longer intervals. One large manufacturer recommends a complete drain every 40 hours, another large manufacturer recommends this at 60 hours on a larger model and 120 hours on a smaller model.

WITH gasoline, longer periods of oil service are recommended. One large manufacturer recommends draining off oil to the lower pet cock level after 30 hours of service, and a complete drain on a small model every 120 hours, on a larger model after 60 hours of service. Another manufacturer recommends a complete drain every 60 hours. One manufacturer, with a model powered by a modified truck engine, recommends a drain every 100 hours, and advertises this savings in oil costs.

A popular new one-plow type tractor, with a five-quart crankcase capacity, has an oil drain recommendation of 40 hours service on tractor fuel, 60 hours of service on gasoline.

Keeping the crankcase oil clean is especially important in the tractor, as the engine is operating under more severe dust conditions than the automobile engine. In plowing, discing, and cultivating the tractor is operating in a dust storm, and if wind conditions are right the dust cloud may be so thick that the operator is barely visible.

Oil filters came into general use for tractors about 1924. They require periodic attention. One manufacturer of two popular farm models recommends replacing the filter element after 200 to 400 hours of operation on gasoline, from 100 to 200 hours on tractor fuel. Another manufacturer has a filter on a larger farm model which is to be cleaned daily with kerosine, and on a smaller model a new element is to be installed every 120 hours of service.

Various types of air cleaners were used by manufacturers years back but about 1932 the oil bath type cleaner came into general use. These hold from a pint to a quart of oil, of S.A.E. 20 or lighter oil. Cleaning and refilling may be necessary several times a day if the tractor is operated in heavy dust. Tractor manufacturers approve using settled and screened crankcase drainings for the air cleaner, but warn against using Diesel engine drainings.

For transmission lubrication S.A.E. 160 for summer and S.A.E. 90 for winter is widely recommended. A check of nine popular models shows that eight models carried this recommendation, and one model had a recommendation of S.A.E. 110 for summer and winter.

LUBRICATION of the tractor has been kept as simple as possible, as to the number of points to be serviced and the number of lubricants required. Numerous points require daily attention, and the lubrication job has to be done on the farm. A line of motor oils in the various S.A.E. grades, two grades of transmission lubricant, pressure gun grease, and a light oil for the magneto will cover the lubrication needs of most tractors now in service.

One popular three-plow model has eleven points to be lubricated daily on the front and rear axle bearings, clutch and steering shaft bearings with S.A.E. 160 in summer, 90 in winter. The oil filter and air cleaner are to be serviced, the crankcase checked, and engine oil put in the two holes in the valve lever trough. Once a week the fan pulley, the starting crank bearing and fan bracket are to be lubricated with S.A.E. 160 or 90, and the countershaft brake camshaft and shoe pin oil are to receive a few drops of engine oil. Every 60 hours of service the clutch release bearing is to be lubricated with transmission lubricant, light oil is to be applied to the magneto every 500 to 100 hours of service, and the steering gear case is to be changed once a year.

ANOTHER familiar model can be lubricated with only gun grease and light oil. Recommendations cover seven points that need daily attention, one point each every 10 hours, 20 to 30 hours, every 200 hours, and every 500 hours.

Another popular model has eleven points requiring pressure gun grease daily, the steering gear housing inspected and brought to level with transmission lubricant every 30 days, plus the crankcase and transmission lubrication.

Tractor lubrication is based on the number of hours of service, rather than on mileage as with the automobile. Mileage is not a factor in determining the work turned out by the tractor engine, as some of the work is performed off the belt while the tractor stands in the barn yard. For a convenient method of figuring length of operations the hours of service basis is used.

This tractor has a modified six-cylinder truck motor made by one of the "Big Three" automobile manufacturers, uses gasoline

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# Tractors Are Rubber-Tired To Give More Pulling Power

Self-cleaning tread features the rubber tires on this tractor pulling a tandem disc harrow

CITRUS fruit growers in Florida over ten years ago were seeking some means of increasing traction to prevent wheels of their tractors from spinning and digging into the sand. Their experimental work laid the foundation for the modern tractor rubber tire. These growers put rubber tires on their tractors by bolting worn truck casings together and, without inner tubes, slipping the casings over the steel rear wheels. The first rubber tires were crude affairs, but they worked.

The next step was the introduction of the smooth, low pressure airplane tire for the tractor by a manufacturer in 1929. The current specially built, low pressure tire came on the market in 1932.

The major advantages claimed for tractor rubber tires is the smaller amount of power required to roll the tractor making more power available at the drawbar, greater fuel economy, greater riding comfort for the operator, less injury to crops and damage to barn floors, and enabling the tractor to operate on highways where laws prohibit tractors with lugs.

The demand from farmers for rubber tires as original equipment on tractors has grown rapidly during the past six years. Last year 64.1 per cent of all tractors sold had tires as original equipment. One tractor manufacturer reports that 90 per cent of his sales in the first quarter this year had rubber tires.

The earliest figures obtainable on tractor sales with rubber as original equipment are for 1935 when 14.3 per cent of tractors were so equipped. The figure jumped to 31.1 per cent for 1936 and 45.6 per cent for 1937.

The cumulative figures for the four years of 1935 through 1938 show that of 740,518 wheel type tractors manufactured, 298,091 or 40.3 per cent had rubber as original equipment. It is estimated that about 25,000 tractors have been converted from steel wheels to rubber tires. These change-overs plus the 298,000 tractors with rubber as original equipment place the number of tractors now rubber tire equipped at about 325,000, without reference to original equipment sales prior to 1935.

Tractors with steel wheels can be converted to rubber tires by the purchase of a complete new wheel and rim, or by having the steel wheel cut down. In cutting down a steel wheel the hub and part of the spokes are retained. A drop center or demountable type rim is welded or brazed to the ends of the spokes. The cutting down is done by the blacksmith or the farm implement dealer.

The tire has to demonstrate its advantage over the steel wheel, one tire manufacturer points out, and "the use of pneumatic tires does make many differences in tractor performance, the total advantages of which easily add up to hours of extra comfort and leisure, dollars of extra earnings and dollars of savings in expense for each year's use."

Experience over the past five years, this manufacturer reports, "indicates that at very conservative evaluation, pneumatic tractor tires repay their buyer for his investment in them within two years' time on the average."

The manufacturer then cites a midwestern university report for pneumatic tires on farm tractors of "27 per cent more acres plowed, 23 per cent saving in fuel, 25.9 per cent more speed on plowed ground and 36.7 per cent more on sod, and rolling resistance 45.9 per cent less on plowed ground and 68.6 per cent less on sod."

The agricultural engineering department of another midwestern university conducted a field test to compare steel wheels with lugs to pneumatic

tires. A single bottom 18-inch plow was used for the load, set to a depth so the tractor engine just kept its governed speed in the field where there was greatest resistance from the plow. Skid chains or wheel weights were not used.

With steel wheel and lugs the tractor in high gear developed 8.08 drawbar horsepower, and the plow cut six to six and a half inches deep. With rubber tires the tractor developed 9.39 drawbar horsepower and the plow cut an inch deeper. To move the tractor alone, 3.655 horsepower was required with steel wheels and lugs, 2.08 horsepower with tires.

Fuel economy tests showed the advantage of rubber tires. In high gear with steel wheels and lugs the tractor averaged 3.41 miles an hour, using 2.25 gallons of fuel an acre. With tires the speed was 3.31 miles an hour, using 1.935 gallons of fuel an acre. In second gear with steel wheels and lugs the tractor consumed 2.36 gallons of fuel an acre, and with tires 2.26 gallons per acre.

SEVEN general points of superiority for the rubber tire are listed by one tire manufacturer, as follows: More power at drawbar, haul bigger loads at higher speeds, eliminate damage to floors, lawns and roads, perform more and varied types of work in less time, reduce fuel and oil expense, increase comfort for operator with smoother ride and dust reduction, and reduce repair bills and increase life of tractor."

The tire brings in the factor of additional weight for the rear wheels to increase traction or pulling power. One tire manufacturer reports that "other factors being equal, the greater the weight carried by a tractor tire, the greater drawbar pulling power it can exert."

Additional weight is given the tractor through adding water to the rear wheel tires, adding metal or concrete weights to the spokes, or placing weights on the axle or platform. A tire manufacturer's tractor tire service book shows that the water capacity of a 7.50-24 tire with the valve at the highest level is 110 pounds, while a 13.50-32 tire has a capacity of 460 pounds. The manufacturer points out that water weight is less costly, but is not recommended for speeds over 25 miles an hour.

Water can be pumped into the tire, and a special pump for this purpose is on the market with discharge hose and valve extension adapter. Tires can be filled also by attaching a closed container to the valve stem and moving the water by air pressure.

For the states where freezing temperatures are a factor during the winter the water ballast can be drained, or the tire water protected by anti-freeze. If the water ballast is removed a manufacturer recommends the addition of denatured alcohol to prevent water remaining in the tire from freezing. After the water is removed the valve stem is placed in the top position of the wheel, a half inch hose fastened over the stem and a small quantity of alcohol put through a funnel into the hose and into the tire. Then the valve core is replaced and the tire inflated.

Calcium chloride is used extensively when water is to be left in the tire during the winter. The calcium chloride is mixed in a container by adding to cold water. One tire manufacturer warns against an acid reaction, and suggests adding a pound of lime to each 100 pounds of calcium chloride. The calcium chloride solution is put in the tire through the special pump, by gravity or by siphon. Tire manufacturers provide calcium chloride mixing formulas for the various sizes of tractor tires, showing the amount of water to be removed from the tire, and the amount of water and calcium chloride in the mixture to be added.

Tire manufacturers point out that calcium chloride will not damage the tire, tube, or valve parts, but that it is harmful to many metals and should not be used as a radiator anti-freeze. They warn also against operating a tractor with ice in the tubes, as the ice may damage the tube.

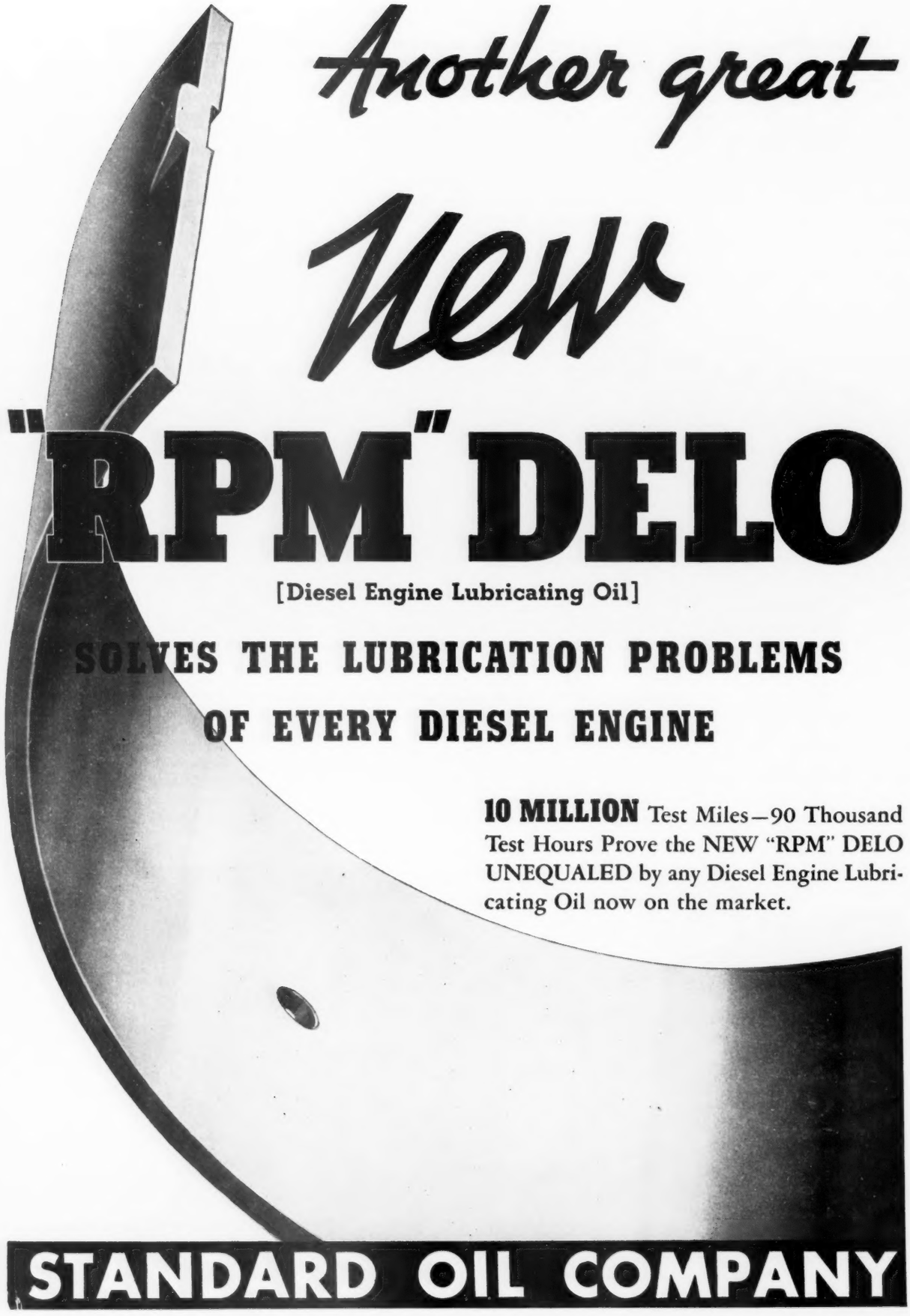
Cushioning from the tires is sufficient and manufacturers recommend taking all the spring action out of the seat by tightening the spring.

WHEN the tractor is being operated for belt work the tractor can be blocked by placing a heavy board from under the rear wheels to the top of the front wheels to prevent any forward roll. If the belt rubs against the front wheels of a four-wheel tractor stakes or rods can be placed in the ground to guide the belt or a piece of sheet metal hung over the front wheel to keep the belt off the tire.

The tractor can be grounded, to guard against static electricity during belt work, by hanging a chain from the tractor to the ground, or by leaning an iron bar against the tractor.

The life of the tractor tire apparently is quite long. Rubber companies have estimated the tractor tire life at seven years. Greatest hazard is reported to be running into obstructions, as along fences, and gouging the tire side walls. Tractor tires are now being weatherproofed, prolonging the estimated life to 12 years.

Rubber tires—in place of steel—on farm tractors, increases pulling power and at the same time lessens the power required to roll the tractor over the ground. Comfort of the operator is also increased



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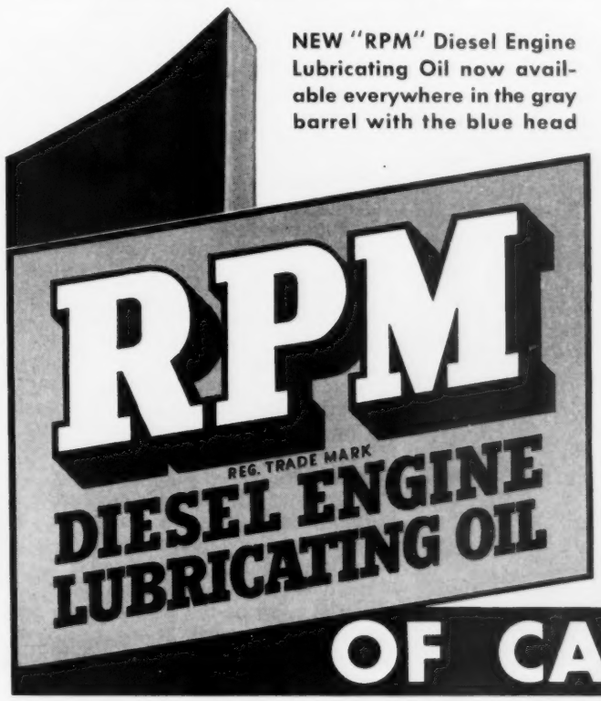


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# Tractor Engine's Efficiency Depends on Its Spark Plugs

**Tractor spark plugs are a replacement item which ties into the oil marketer's selling of fuels and lubricants to the farm trade. The right type of plug, in good condition, promotes combustion efficiency, aiding complete utilization of fuel. Occasionally, the tractor fuel is blamed for engine trouble when the real cause is a faulty spark plug.**

THE spark plug is important to the petroleum industry both as a factor in correct combustion of the fuel delivered to the farmer, and as a replacement item to be sold to the farm trade.

The farm tractor usually is in the market for a set of plugs once a year, in the spring when the tractor gets into the fields and additional plugs may be required during the hot summer weather or in the fall harvest season.

The correct type of plug is one of the keys to maximum efficiency from the fuel used in the tractor. One oil company has found that correct plugs have cured operating difficulties such as missing under heavy load, pre-ignition, overheating, valves sticking and excessive fuel consumption, and the company has been marketing plugs for two years.

"We feel the service rendered by aiding the farmer to have the correct plug for his particular operating condition is far greater than any profit consideration involved, and the farmer has greater satisfaction with the fuel that he has bought," commented an official of the company.

Since the purpose of the plug is to ignite the mixture in the cylinder, fuels with a high distillation range, tractor fuel and kerosine, require a higher temperature in the plug, while the lower distillation range of gasoline requires less temperature in the plug.

The spark plug dissipates heat through the insulator nose, to the shell, the gasket and to the water chamber in the cylinder head. The longer insulator in the "hot" type plug offers more resistance and keeps more heat in the plug, while the shorter insulator nose of the "cold" plug offers less resistance and heat flows away more rapidly.

Knowledge of the correct type of plug and the causes of failure is invaluable to oil men serving the farm trade, in handling fuel complaints and in assisting the farmer to get top performance from his tractor. The causes of plug failure can be determined by the condition of the plug.

If a plug is operating at too high a temperature the electrodes will wear rapidly, the insulator nose will blister or melt, and there will be pre-ignition, one plug manufacturer notes in its data book. If the plug is operating too cold, deposits will not burn off, and the plug will be short-circuited.

The manufacturer then lists the causes for plug failure:

A broken insulator top, means improper installation.

A clean split in the insulator nose after a short period of operation, usually is due to bending or straining in resetting the center electrode.

Excessive wear on the side electrode means plug is not tight or plug is too hot for the service required.

Oxide deposit after long operation under heavy load or at high speed is caused by the fuel and is remedied by cleaning.

Carbon deposit on the insulator nose means the plug is too "cold," the mixture is too rich and the carburetor needs adjustment, or the engine is pumping oil and needs reconditioning.

Burned or blistered insulator nose with excessive wear of both electrodes is caused by several factors. The plug may be improperly seated or is too "hot." The exhaust valve may be overheating and the compression and tappet clearance require checking. The spark may be advanced excessively. There may be carbon in the cylinder, or the cooling system may need reconditioning.

Another manufacturer lists the most important plug troubles as "pre-ignition, fouling, detonation, split insulators, burnt or blistered firing tips, misfiring and overheating."

The color of the insulator tip reveals whether the plug is too "hot" or too "cold" for the service requirement. Plugs that are performing correctly have a light brown color. If the plug is too "cold" the color shades into

Over a million and a half tractors provide a large replacement market for spark plugs, necessary for efficient operation. Picture shows tractor powering a combine threshing sorghum

black, if too "hot" the color shades to white.

There are other variations in spark plugs in addition to the heat range. Plugs are manufactured in five thread sizes, 10, 12, 14, and 18 mm and ⅞ inch. Plugs also are made in one and two piece construction, the number of parts that fit into the shell.

Spark plugs in tractors are subjected to harder service than in automobiles. It is generally conceded that the spark from a magneto is harder on the electrodes than the spark from the battery ignition system, through the efficiency of the battery ignition system decreasing as the engine speed increases, while the intensity of the spark from the magneto increases with additional engine speed.

Installation of plugs has been given as the cause for several types of plug failure. The two features of proper installation are correct gap setting, and the tightening of the plug in the plug port of the cylinder head.

Installation instructions given by one manufacturer begin with inspection of the plug seat in the cylinder head and removing any obstructions. The plug should be screwed in by hand, after checking the gap, then tightened with a socket, not an open-end wrench. When the gasket is completely compressed the resistance on the wrench handle becomes great.

"The proper tightening of spark plugs is the most important item of all, as 50 per cent of the troubles due to overheated spark plugs are caused by the plugs being too loose in the cylinder head," the manufacturer notes.

The other important feature of proper installation is the correct gap setting of the electrodes. "Most spark plug companies print gaps giving engine manufacturer's recommendations and if you do not have other authentic data, these dimensions should be used," the chief engineer of a manufacturer advises.

"When a plug is made at the factory, there is no way of knowing just what engine the spark plug will be used in; therefore, the manufacturer can use only that gap which is most likely to be required," he explained.

"When spark plugs are removed and the gaps reset," he added, "it is always advisable to install them with new engine gaskets as the copper gaskets become hardened with usage and they do not offer a good seal."

The information on causes and remedies of spark plug failures provides the oil man serving the farm trade with data that is useful in handling complaints of fuel and engine performance when the plug is involved. The remedies indicate the trouble may be found outside the plug, in the cooling system, valves, or carburetor adjustment. The trouble in the plug may be in the tightening of the plug in the cylinder port, in cleaning and resetting the gap, or in recommending a different heat range plug. One manufacturer advises making sure that the plug is not performing properly before recommending use of the next hotter or colder plug.


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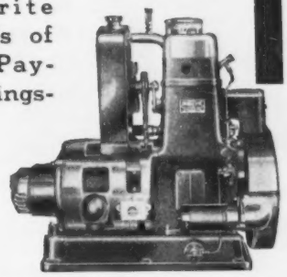

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WITTE ENGINE WORKS

# More Motor Vehicles on Farms Seen If Secondary Roads are Improved

**By J. E. Pennybacker**

Managing Director of The Asphalt Institute, New York

**Not so many years ago, there was a wide-heralded program to "get the farmer out of the mud." Little is heard of that program today—probably because of the hundreds of millions spent on federal and state highways in recent years. Yet, the U. S. Bureau of Public Roads estimates that, in the average state, federal-aid and state highways give access to only about 25 per cent of the farmers and their places of business, social and religious gatherings.**

**How an adequate program for improving secondary roads with low-cost materials would stretch out the highway dollar, bringing the advantages of motor transportation to additional thousands of farms, is told in this article. The article cites the farmer's low per-capita ownership of motor vehicles as compared with the U. S. average, blaming lack of secondary roads.**

**To the oil marketer, improved secondary roads would also mean less trouble for his tank trucks making deliveries to isolated farms and rural communities.**

ALTHOUGH motor transport is almost an economic necessity in farming operations of today, a study of available statistics indicates that farmers are lagging far behind urban dwellers in per capita ownership of automobiles. This is largely due to lack of good farm roads, but the situation is one which should engage the careful study of at least two great industries—the automobile manufacturers and the petroleum producers—since here apparently is a market of great potentiality if obstacles can be removed.

To outline the picture clearly let us first consider the points developed by the 1930 Census. In that year there were 6,288,648 farms, of which only 3,650,003, or 58 per cent, owned one or more cars to a total of 4,134,675; and only 845,335 farms, or 13.4 per cent, owned trucks to the number of 900,325. Clearly this indicated a great unsatisfied need for motor transport at that time.

In 1930 there were 23,059,262 cars registered in the United States or a per capita average of one car for each 5.33 persons (population 122,775,046). Since the farm population in that year was 30,445,350, this nationwide per capita should have shown farmer ownership of 5,712,000 cars instead of the actual count of 4,134,675. This, however, is only part of the story. If we consider that the non-farm population of 92,329,696 owned 18,924,587 cars, its per capita was one car to each 4.87 persons as compared with the farm distribution of one car for each 7.36 persons. Motor car utilization by the farmer therefore was definitely only 66 per cent of the per capita use by non-farmers.

To what extent have the later years affected this economic status of 1930?

Farms increased in the five year period 1930 to 1935 by 523,702, or about 8.33 per cent, to 6,812,350. Farm population increased 1,355,557, or 4.45 per cent, while motor car registration **decreased** 493,915 cars in the 1930-1935 period. Inspection of increases and decreases in registrations indicated that the trend to greater urban use continued.

J. E. Pennybacker, New York, managing director of The Asphalt Institute, was formerly chief highway economist of the U. S. Bureau of Public Roads, statistical adviser to the Senate post office and post roads committee, and chairman of the Good Roads Board of the American Automobile Ass'n.

In nine industrial states and the District of Columbia there was in the 1930-1935 period an increase in registrations of 23,433 cars; while in the 39 states in which agriculture predominated there was a decrease of 517,348 registrations.

These statistics indicated therefore that 1935 showed no reversal of the farm status. True, the United States Department of Agriculture in 1936 canvassed 17,000 farms and found about 85 per cent owning cars; but this finding is so utterly at variance with the 58 per cent showing of 1930 and so inconsistent with the facts developed as to **decrease** in car registrations in agricultural states with **increase** of farms, while industrial states increased their registration, as to leave it of doubtful value as a cross section of the 6,812,000 farms of 1935.

If 85 per cent of the 6,812,350 farms had motor cars at the beginning of 1936 it would have represented an increase of 2,140,495 farm cars and the absorbing of the 493,915 decrease in total registrations, or a total increase of 2,634,410 cars by the farm population alone. There is no warrant whatsoever for such an assumption in the face of a Nation-wide decrease.

Unless, therefore, a sharp reversal of trends since 1935 has occurred we can still regard the 1930 status as essentially representative of today's conditions. In fact the 1935 showing indicated an actual decrease in farm car per capita.

In the three year period 1936-1938 inclusive there has occurred an increase in car registrations from 22,562,847 to 25,261,649, or 2,698,802 cars. Industrial and recreational states continued to lead in gains as compared with agricultural states. Thus New York gained 235,425 while Iowa gained 32,047; Michigan gained 157,746, while Kansas gained 3243 registrations.

It seems therefore a thoroughly warranted conclusion that today the farmer retains a status of utilizing motor transport in a ratio of about two-thirds of the per capita developed by the non-farm population.

Nor is the quality of farm motor equipment up to average. A census conducted by the United States Department of Agriculture and the

Census Bureau as of January 1, 1938, showed 39.2 per cent of farm cars and 45.7 per cent of farm trucks over eight years old.

Before discussing the interesting question of why this condition prevails and how the latent demand can be made active, it is of interest to measure the hypothetical losses to the automotive and the petroleum industries through failure of the farm population to keep pace with the rest of the nation in motor transport.

One car to every 4.87 persons, the ratio of non-farm population, would have meant 6,251,000 cars in 1930 for the farm folks instead of 4,134,000 so that here was a potential unsatisfied market for 2,117,000 cars. That number of cars at the national average of 641 gallons of gasoline per car would have consumed 1,357,000,000 gallons more of gasoline. The amount of gasoline consumed in 1930 was 16,716,340,000 gallons. Had the farm population used motor cars in the same ratio as non-farm population the petroleum industry's gasoline sales for 1930 would therefore have been higher by about 8.1 per cent. It is fair to assume that such a potential still exists.

This was a familiar site to the early motorist. And it is still to be found today in some sections, if the motorist turns off of the highway. Pictured above is River Road, near Fredericksburg, Va., years ago. Below, is the same road today, improved with a low-cost material

AN increase in the sales of gasoline in a volume of such magnitude would have a tremendously stimulating effect upon the petroleum industry and, even though this maximum gain were gradually acquired, it would still be a powerful factor in assuring prosperity to the petroleum industry. There would of course be increases in the sale of lubricants, while in the field of asphalt and road oil surprising gains would be achieved. It would require for the building of 100,000 miles of additional farm to market roads supplementing the present program something like six million tons of asphalt. Since the total annual output is now 5,500,000 tons, such a program extending over a period of years would so increase the sales of asphalt as to remedy most of the present ills of unbalanced supply and demand. This in turn would help the fuel oil market.

Now, why does such a disparity exist? One may cite the poverty of farm tenants and share croppers and the large negro element among farmers but against this may be cited the great city slum population with no reason whatever for owning a motor car. One may point to the great cost of garages, insurance and operation of cars in cities as against negligible costs on farms. The fact that cities have subways, elevated and surface cars, rails, boats and buses affording cheap and plentiful transport should serve to reduce car demand, while the absence of all these facilities in the farming districts should induce widespread buying. Finally, the motor car is of vast intrinsic value to the farmer while too often it is a luxury to the wage earner.

Provide the farmer with roads and he will provide himself with a motor car.

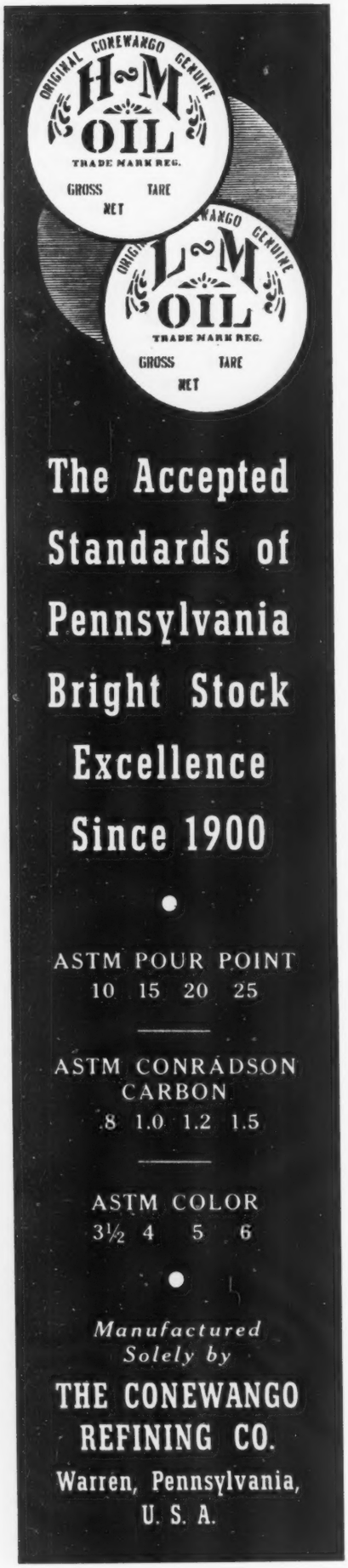
The Nation has spent a good many billions of dollars in building a magnificent highway system but it has been principally engaged in connecting large cities with trunk line highways, allowing the farm roads to await the approximate completion of the trunk line system. This policy is not without substantial justification. Obviously the most travelled roads warranted first attention. It is a fact, however, that in building modern, high cost pavements there must be traffic volume sufficient to warrant the outlay.

Recent surveys by the United States Bureau of Public Roads and the State Highways Departments have shown that there are approximately 90,000 miles of highway in the United States with a traffic of 1000 or more vehicles per mile per day. This volume of traffic is certainly the minimum to justify a high type pavement. Most engineers place this minimum at not less than 1500 vehicles per mile per day. A study of highway statistics reveals the striking fact that at the close of 1937 the length of all high types of pavements exceeded 125,000 miles, or 35,000 miles more than the traffic conditions would appear to warrant. It would therefore seem that a vast sum of money could have been diverted to the development of rural transport highways without seriously curtailing the trunk line highway program. Motor vehicle traffic is essentially a short haul facility, as government surveys have shown that the great majority of all trips have a length of less than 30 miles, and a survey of the transcontinental traffic has shown that only 300 vehicles per mile per day make the trip from Coast to Coast on all highways combined.

IT WAS only in the past two years that Congress made definite appropriations of $25,000,000 a year for aid to the construction of farm to market or feeder roads. During the same period the regular Federal Aid appropriation has averaged about $200,000,000 a year and, when we take into account the emergency fund, the total spent to date by the Federal Government on trunk lines exceeds $2,000,000,000. The same is true of the states, in that an overwhelming proportion of the state funds go to the trunk line systems.

Thomas H. MacDonald, the present Chief of the United States Bureau of Public Roads, has coupled able management of the highway program with searching economic studies and is inducing greater activity in the building of secondary highways in recent years.

There are however over 3,000,000 miles of highway in the United States of which the trunk line systems comprise only about 10 per cent. A well




planned farm to market road program would go far toward remedying the backward conditions of rural transport for the reason that all-weather farm to market roads can be constructed at from 1/6 to ⅛ the cost of a trunk line pavement. It is therefore possible to build a huge mileage of these farm to market roads without any great annual outlay. If, as is theoretically probable, there should be an added consumption of nearly 1,500,000,000 gallons of gasoline, the tax at an average of 3c per gallon would yield a revenue of nearly $45,000,000 per year and would of itself provide the funds which, added to the present appropriations, would assure a really impressive farm to market program—which would largely pay for itself.

The thought of a modest farm to market road program in contrast with the flamboyant schemes for great transcontinental self-sustaining truck lines come like a breath of fresh air in a superheated atmosphere. Here is something entirely feasible, widely beneficial, and of infinite public appeal. The economic benefits, in part, may be listed as (1) decreased cost of transport; (2) more happiness and comfort; (3) better school facilities; (4) better police, fire and health protection; (5) greater use of local materials; (6) greater employment of labor and wider distribution of money.

A striking demonstration of the need for decreased cost of transportation is the tremendous disparity between the cost of raising farm products and the price paid by the consumer, as shown in the following quotation from a recent release by the Twentieth Century Fund:

> "It costs three or four times as much to bring vegetables and fruits from the farm to the dinner table as it does to grow them, according to the findings of a study of the costs of distribution which has just been completed by the Twentieth Century Fund under the direction of its special Committee on Distribution. The research report lists the actual 'price spreads' of many typical foodstuffs.
>
> "The figures show, for instance, that the farmer got seven-tenths of a cent per pound for cabbages in 1935, but the housewife had to pay four cents a pound at the corner grocery. She paid an average of 5.5 cents for a bunch of carrots for which the farmer received one cent. The oranges she bought at an average of 31.8 cents a dozen brought the grower 8.7 cents. Of the 1.9 cents she paid for a pound of potatoes, the farmer received eight-tenths of one cent. A pound of apples that brought 1.9 cents at the orchard reached the kitchen at 5.8 cents."

The gasoline tax has assumed enormous proportions due in no small measure to a substantial degree of overdesigning. Substitution of a low cost road program such as is outlined should mean vastly more mileage with no corresponding tax increase since it means greater mileage at less unit cost. Moreover, if the farmer, largely by reason of improved highways, moves up to the National per capita use of gasoline the expanded road program as already shown will be largely self sustaining.

Tax diversion will become increasingly obnoxious as the great farm population receives wider and wider benefits. The farmer may be indifferent to curtailment of trunk line building but he would see red when his farm road funds once available were taken away from him.

A wide network of all weather farm roads would offer a fascinating field for the development of travel on a vast scale. There could be worked out local campaigns for home week, for family reunions, for tourist attractions, for local market days. Resort facilities could be further developed, and safety could be promoted by inducing urban pleasure traffic to forsake the boulevards for these quiet, safe country roads.

IN the operation of the Rural Mail Delivery Service the Federal Government has a direct concern with the rural highways.

Even in the matter of National Defense there is an all-important place for a network of all weather country roads. In his testimony before the Roads Committee of the United States House of Representatives in January, 1938, Lieut. Col. Russell P. Hartle of the U. S. Army General Staff, said:

> "In moving a unit of this size (Division) it is highly desirable to use more than one road. It can be moved on one road but in such case the column is about 50 miles long and unwieldy. If the road net will permit it, it is the normal practice to break the column up and move on two or more approximately parallel roads."

Imagine any army moving to a given area on a trunk line with each Division stretching back for a distance of fifty miles when a net-work of lesser highways would permit a coordinated movement of many divisions.

America has a great economic future in the development of a network of country roads and it can well afford to expand the "vehicle mile yardstick" to include the fundamental reasons of National Welfare as justification for a greater farm to market road program.

# Give the Truckers Plenty of Elbow Room

**An oil jobber in Coffeyville, Kans., wondered why he was not getting his share of the gasoline and oil business of the freight trucks rolling by. When he found that it was because his station was too small for the truckers to get into, he built a new station on a large lot. He designed and equipped this station especially for the trucking trade. And he got it.**

COFFEYVILLE, KANS.

For several years Fred Kistler had noted the steady increase in freight trucks rumbling by the offices of the Fred Kistler Oil Co. in Coffeyville, Kans.

The huge, highway freighters vibrated the office floor as they roll into or from the Southwest. The frequency of these vibrations convinced Kistler that freight hauling by truck in his section had grown to be quite a business. And that meant more business in motor oils and fuels for somebody.

Kistler found that he was not getting his share of the increased truck business. He soon became convinced that this was because trucks could not be maneuvered in and out of his station, located on one of the main streets in Coffeyville.

Some eight or nine months ago Fred Kistler accordingly selected at the south edge of the city and on a main highway a site that is almost as large as a city block, and began making a bid for the truck trade that passes so frequently through Coffeyville.

At the rear of the selected site was a railway switch spur, making it ideal for spotting tank cars for unloading into storage tanks which he erected at the rear of the lot.

In front of the tanks he constructed a loading dock, for use in the wholesale distribution of petroleum products.

An attractive combination service station, accessories store and dormitory was built on the lot, but sufficiently far from the highway to provide enough space for truck drivers to maneuver the largest van. Two pump islands, far enough apart to permit trucks to pass between them, and so located that they could be reached with ease, were constructed.

At another location on the lot, he installed a two-post hydraulic lift powerful enough to permit lubricating loaded trucks.

The rest of the station ground left ample space for parking trucks while drivers rested or slept in the dormitory.

In one front corner of the service station building an ice house was constructed. The interior of the lower floor was partitioned into a small "general merchandise" store, an automobile accessories store, and a three room furnished apartment for the night manager and his wife.

The station has a shower room where hot and cold water are available at all times for the truck drivers.

The dormitory on the second floor has eight cots, with separate lockers, magazines, and a radio. Each truck driver carries his own bedding. When he checks in he is given a lock and key for one of the lockers for his personal belongings.

The general merchandise store stocks groceries, meats, cooking utensils, garden tools, fishing tackle, in fact just about what one would expect to find at a small cross-roads general store.

John G. Pierce was placed in charge of the truckers' station. He has spent his spare time landscaping the grounds around the station, recently setting 30 rambler rose bushes along a fence across the street from the station.

After the station was completed Pierce set to work to get the trucking companies' business. This is being done by personal solicitation and by direct mail.

"We have attempted to deal with the company as much as possible," Pierce explained. "We have found that the truck drivers many times try to force us into giving a discount which, if we yield, often goes into the truck driver's pocket rather than to the company. We have accordingly concentrated on getting the companies lined up so that all the truck driver does is sign the ticket."

Eight truck lines are now regular customers of the station, Mr. Pierce said. Two of the lines, he added, are preparing to go to diesel-powered equipment in the near future and two pumps have been installed to service that equipment when it is placed on the road.

Truck drivers know they can roll into the station, park their trucks off the highway where they will be safe, clean up and get a good undisturbed rest in the dormitory without it costing them a penny.

Mr. Pierce hit upon a clever advertising sign recently. An old visible bowl type pump was set out on the parking, and red neon tubes placed in the bowl. That pump bowl, he said, can be seen for a mile each way at night, and has become a beacon for the regular truck drivers.

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### Oil Trucking Gains 18% in April

WASHINGTON, June 12. — Movement of petroleum products by truck in April showed an 18.9 per cent gain in tonnage over April 1938, according to comparative figures gathered by American Trucking Associations, Inc. April tonnage was about 1.5 per cent under March (which had 31 days).

Movement of oil commodities by truck in April was 6.4 per cent under March, but 19.3 per cent over April 1938, ATA reports.

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TULSA—Following a "naming contest" among its customers Danciger Oil & Refineries, Inc. has announced the selection of "Road Runner Racer" as the name for its recently announced higher octane leaded motor fuel.

There is plenty of room at this service station for any size freight truck, either for servicing or parking. The loading dock for the wholesale trade is seen directly in front of the storage tanks. The manifold system is so arranged that loading can be directly from tank car to tank truck, or from the tanks to the truck. The pump is located beneath the loading dock. Station includes a dormitory, general store, and living quarters for the operator. John G. Pierce

# IT MAKES NO DIFFERENCE . . . .

Regardless of whether the liquids you handle are highly volatile or extremely viscose, *Viking pumps them all* . . . efficiently and consistently. Its flexibility is one of the reasons why the Viking Rotary Pump is such an overwhelming favorite with the petroleum industry.

It is only necessary that Viking knows just what type of liquid you are pumping. If HEAVY, the pump is geared to a reduced speed and given extra running clearance. If LIGHT, full rated speed and standard running clearance is the answer. Every Viking Rotary Pump is built around the world-famous "GEAR WITHIN A GEAR" Viking principle . . . and it's the same principle that has been COPIED by many other rotary pump manufacturers. You'll find the Viking Rotary Pump a thrifty, willing worker, in the refinery, blending plant or bulk station. You make your selection from the world's most complete line of rotary pumps. Write Viking for bulletins, today.

The Viking "GEAR WITHIN A GEAR" Principle is your guarantee of finer pumping performance. Employing just "2 MOVING PARTS" it adds years to the life of every Viking Pump. In the Petroleum industry you'll find many Viking Rotary Pumps that have been in constant operation for more than 20 years. Isn't that the type of pump you've been looking for?

## VIKING PUMP CO. CEDAR FALLS IOWA

**There's a VIKING For every Clean Liquid**

# Markets

### Mid-Continent

TULSA, June 12.—Tank wagon gasoline price advances in 42 states announced by Sinclair Refg. Co. to become effective June 14 and local upward adjustments by some other marketing companies highlighted the Mid-Continent gasoline market last week, traders said. "Ruinously low" tank wagon prices were said to have had a "disturbing effect" on tank car prices.

Tank car gasoline quotations were reported unchanged throughout the Mid-Continent. Offerings in the open market were said to be small in volume.

Sales prices reported for Grade 26-70 natural gasoline were 2.75 cents f.o.b. Group 3 and Breckenridge, 0.125 cent above the previous week. Some sales, however, continued to be reported at 2.625 cents, f.o.b. Breckenridge basis.

### Pennsylvania

CLEVELAND, June 12. — Refinery prices generally were reported unchanged in western Pennsylvania the past week. Movement of most products, largely against contracts, was fairly heavy, refiners said.

Varied reports were heard regarding the status of bright stock. Some refiners said they were sold up well in advance while others indicated their supplies were larger than for some time past. One refiner who had been quoting 15.5 cents for 25 pour test bright stock reported advancing his price to 16 cents. Another refiner said he had reduced his quotation from 16 cents to 15.5 cents. Other quotations reported ranged up to 16.5 cents.

### Mid-Western

CHICAGO, June 12. — Open spot sales of 20 cars of gasoline, 11 of which were 70-72 octane, were reported by refiners and tank car marketers here the first week of June. Prices generally were unchanged, according to reports. Resellers continued to report limited supplies of all grades of gasoline. Bulk of jobber demand was against contracts, they said.

Some tank car marketers said jobbers were showing more interest in kerosine, although no open spot sales of this product were reported. Quotations ranged from 3.5 to 4.375 cents, reports indicated.

A refiner who had been quoting 4 cents for range oil said he had reduced his quotation 0.125 cent to 3.875 cents. Other quotations reported for this product ranged upward from 3.25 cents.

### Eastern

NEW YORK, June 12.—A 0.25-cent advance in prices for high octane gasoline at New York harbor featured eastern seaboard markets the past week. Quotations at other points generally were reported unchanged.

Quotations at New York harbor for 65 octane and above gasoline generally were at 5.75 cents for barges and 6 cents for tank cars, according to reports. A buyer insisted he had received quotations as low as 5.625 cents for barge lots but such offers could not be confirmed with suppliers.

Reports indicated movement of gasoline, almost entirely against contracts, was in fair volume.

### Gulf

NEW YORK, June 12.—A number of export and domestic inquiries for 65 octane gasoline and high diesel index gas oil were reported in Gulf Coast trade circles the past week. No sales were reported.

Unconfirmed reports also were current here that a cargo of No. 2 fuel oil had been sold at 3 cents and two cargoes of Bunker C, one at $0.78 and the other at $0.80 per barrel, had been sold for coastwise shipment, June lifting.

Two refiners who had been quoting all grades of gasoline from 60 to 70 octane reported the past week that they were now confining their quotations to the 60, 65, 68 and 70 octane grades. One refiner offering 68 octane unleaded gasoline at 5.25 cents said he was quoting 5.125 cents for "Q" gasoline.

### Wax

NEW YORK, June 12. — Prices for crude scale wax, yellow and white, as well as fully refined grades, were generally unchanged at New York and New Orleans during the week of June 10, according to reports of suppliers. Traders said demand was fairly active, and a shortage of certain scale grades continued to be reported.

## N. P. N. Gasoline Index

| | Dealer T.w. Cents | Tank Car per Gal. |
|---|---|---|
| June 12 ..... | 9.54 | 5.71 |
| Month ago ..... | 9.49 | 5.67 |
| Year ago ..... | 10.14 | 6.00 |

*Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities.*

*Tank car index is a weighted average of 12 wholesale markets for regular-grade gasoline.*

# Fuel Oil

NEW YORK, June 12.—Price postings for No. 6 fuel oil and Grade C bunker oil, ships' bunkers, generally were reported at higher levels at all points along the east coast in the week ended June 10. One supplier also reported advancing his price for No. 5 oil 10 cents to $1.25 per barrel at Philadelphia and Baltimore.

A number of suppliers at New York, Portland, Boston and Providence reported 0.125-cent declines in their prices for kerosine, and Nos. 1 and 2 fuel oils.

Demand for the heavy industrial fuels was good while kerosine and light fuels were in the midst of their usual summer lull, traders said.

* * *

CHICAGO, June 12.—Consumer demand for heavy industrial fuels continued good the past week, according to reports of traders here. Prices generally were unchanged, reports indicated.

A tank car marketer reported selling one car of U.G.I. gas oil at 2.875 cents. Other quotations reported for this product ranged upward from 2.625 cents.

Prices for light fuels for the most part were reported unchanged. No open spot sales were reported during the week. Refiners generally said they were principally interested in building up their stocks for fall demand.

* * *

TULSA, June 12.—Inquiry for heavy Mid-Continent fuel oil from industrial buyers was reported brisk last week. This coupled with a slight increase in road oil demand was said to have relieved some suppliers temporarily of excessive stocks. Trading in light fuel oils was listless, refiners said.

## Safety Council Plans for Meeting at Atlantic City

N. P. N. News Bureau

CHICAGO—A housing committee has opened headquarters at 16 Central Pier, Atlantic City, N. J., to handle hotel reservations for the 28th National Safety Congress and Exposition, which will be held in that city Oct. 16 to 20. The committee is called the National Safety Council Housing Committee.

The exposition, most of the sessions, and registration headquarters will be at Convention Hall, according to "Petroleum Safety", news letter published by the Petroleum Section of the council.

Early morning classes, according to this news letter, will feature four lectures on "The Human Side of Safety". The first two lectures will be on "The Man", and the last two "Dealing with the Man".

A trip to the New York World's Fair is being planned by many members, the letter says, Atlantic City being 125 miles from the fair.

THIS IS THE PICTURE THAT IS WORTH A THOUSAND WORDS

ABC

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**National Petroleum News**

***An A. B. C. Publication***

**A.B.C. = Audit Bureau of Circulations = FACTS as a yardstick of advertising value**

# REFINERY TANK CAR MARKETS

*All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days) unless otherwise stated. Prices in cents per gallon, except heavy fuel oils in dollars per barrel of 42 gallons, wax and petrolatums in cents per pound in barrels, tank car lots, FOB refineries in districts designated, except where otherwise noted. Inter-refinery and export prices not included unless so stated in the respective markets. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude. Unless otherwise noted, gasoline octane ratings are determined by C.F.R. Motor method, A.S.T.M. D-357-33T; and lubricating oil specifications determined according to A.S.T.M. methods, unless otherwise noted.*

## Gasoline

| Prices Effective | June 12 | June 5 |
|---|---|---|
| **OKLAHOMA** | | |
| U. S. Motor: (Octane L-3) | | |
| 62 oct. & below | 4.25 – 4.50 | 4.25 – 4.50 |
| 63-66 oct. | 4.50 – 4.75 | 4.50 – 4.75 |
| 67-69 oct. | 4.75 – 5.00 | 4.75 – 5.00 |
| 70-72 oct. | 5.00 – 5.25 | 5.00 – 5.25 |
| 60-62, 400 e.p. | (h)4.25 | (h)4.25 |
| **WESTERN PENNA. REFINERY QUOTATIONS** | | |
| *Bradford-Warren:* | | |
| Motor gasoline: | | |
| U. S. Motor: | | |
| Min. 65 oct. | (h) 6.25 –6.75 | (h) 6.25 –6.75 |
| Min. 70 oct. | (e)6.50 | (e)6.50 |
| "Q" gasoline | (h) 6.25 –6.75 | (h) 6.25 –6.75 |
| *Other districts:* | | |
| Motor gasoline: | | |
| U. S. Motor (58-62° gravity): | 4.50 – 5.00 | 4.50 – 5.00 |
| "Q" gasoline | 6.25 – 6.50 | 6.25 – 6.50 |
| **CENTRAL MICHIGAN** (a) | | |
| Str.-Run Gasoline | 4.50 – 4.625 | 4.50 – 4.625 |
| U.S. Motor: (Octane L-3) | | |
| 67-69 octane | (e)6.50 | (e)6.50 |
| 70-72 octane | 7.25 | 7.25 |
| **CALIFORNIA** (3c tax to be added if used in state) | | |
| U. S. Motor: | | |
| 54-58 gravity, for in-state shipment | 7.00 – 9.25 | 7.00 – 9.25 |
| 54-58 gravity, for out-side state shipment | 7.00 – 9.00 | 7.00 – 9.00 |
| 58-61 gravity, 375-400 e.p., 65 oct. & above | 7.75 – 9.75 | 7.75 – 9.75 |
| **N. TEX.** (b) | | |
| U. S. Motor: (Octane L-3) | | |
| 62 oct. & below | 4.25 – 4.50 | 4.125– 4.50 |
| 63-66 oct. | 4.625– 4.875 | 4.50 – 4.875 |
| 67-69 oct. | 4.75 – 5.00 | 4.625– 5.00 |
| 70-72 oct. | 5.00 – 5.375 | 4.875– 5.375 |
| 60-62, 400 e.p. | (h)4.25 | (h) 4.125–4.25 |
| **KANSAS** (For Kansas destinations only) | | |
| U. S. Motor: (Octane L-3) | | |
| 62 oct. & below | 4.50 – 5.00 | 4.50 – 5.00 |
| 67-69 octane | 4.875– 5.50 | 4.875– 5.50 |
| 70-72 octane | 5.25 – 5.875 | 5.25 – 5.875 |
| **W. TEX.** (b) | | |
| U. S. Motor: (Octane L-3) | | |
| 62 oct. & below | (h) 4.00 –4.375 | (h) 4.00 –4.375 |
| 63-66 oct. | (e)4.75 | (e)4.75 |
| 67-69 oct. | (h) 4.75 –5.00 | (h) 4.75 –5.00 |
| 70-72 oct. | (h) 5.00 –5.50 | (h) 5.00 –5.50 |
| **CENTRAL WEST TEXAS** (Prices to truck transports) | | |
| U. S. Motor Gasoline: (Octane L-3) | | |
| 62 oct. & below | (e)4.25 | (h) 4.125–4.25 |
| 63-66 octane | (e)4.75 | (e)4.75 |
| 66-70 octane | (e)5.125 | (e)5.125 |
| **E. TEX.** | | |
| U. S. Motor Gasoline, (Octane L-3) | | |
| 70-72 oct. | (h) 4.625–4.75 | (h) 4.625–4.75 |
| 60-62, 400 e.p. | (h)4.25 | (h)4.25 |
| **N. LA.** (For shipment to La. & Ark.) | | |
| U. S. Motor: (Octane L-3) | | |
| 62 oct. & below | (h) 4.25 –4.375 | (h) 4.25 –4.375 |
| 63-66 oct. | (e) 4.50 –4.625 | (e) 4.50 –4.625 |
| 67-69 oct. | (e) 4.75 –4.875 | (e) 4.75 –4.875 |
| 70-72 oct. | (e) 4.875–5.375 | (e) 4.875–5.375 |
| **ARKANSAS** (F.o.b. Ark. plant of one refiner, for shipment to Ark. & La.) | | |
| U. S. Motor: (Octane L-3) | | |
| 62 octane & below | 4.50 | 4.50 |
| 67-69 oct. | 4.875 | 4.875 |
| **OHIO** (S. O. Ohio quotations for statewide delivery and subject to exceptions for local price disturbances) | | |
| 70-72 octane | 7.375 | 7.375 |

*(Continued on next page)*

(a) Prices FOB. Central Michigan refinery group basis, for shipment within Mich. Shipments may originate at plants outside Central group. (b) For shipment to Texas and New Mexico destinations; Group 3 prices quoted for northern shipment. (c) Excluding Detroit shipment. (e) One refiner quoting. (f) Two suppliers quoting. (g) To re-sellers holding licenses. (h) Two refiners quoting. (i) No quotations reported. (j) Prices discontinued.

# MID-WESTERN TANK CAR MARKET

*Prices in this Midwestern Tank Car Market table are gathered from refiners and tank car marketers or brokers from their offices located in Chicago and the surrounding territory. While the prices are quoted on a Group 3 (Oklahoma) freight rate basis, this is in accordance with the custom of the oil industry which uses Group 3 as a price basis for the ease of comparing prices even when the material originates in another refining district. Generally when prices are quoted in this Chicago market, the origin of the material is not known at the time the quotation is given, oftentimes even with the quoting refiners who have refineries in more than one refining district. All other gasoline prices are given by and for the particular refining district where the material is made and from which it is shipped.*

## Gasoline

| Prices Effective | June 12 | June 5 |
|---|---|---|
| U. S. Motor: (Octane L-3) | | |
| 62 oct. and below | 4.00 – 4.50 | 4.00 – 4.50 |
| 63-66 oct. | 4.375– 4.50 | 4.25 – 4.625 |
| 67-69 oct. | 4.50 – 4.875 | 4.375– 4.875 |
| 70-72 oct. | 4.625– 5.25 | 4.625– 5.25 |

## Kerosine

| | | |
|---|---|---|
| 41-43 gravity, w.w. | 3.50 – 4.125 | 3.50 – 4.125 |
| 42-44 gravity, w.w. | 3.625– 4.375 | 3.625– 4.375 |

## Fuel and Gas Oils

| Prices Effective | June 12 | June 5 |
|---|---|---|
| No. 1 p.w. | 3.25 – 3.75 | 3.25 – 3.875 |
| No. 1 straw | 3.25 – 3.50 | 3.25 – 3.50 |
| No. 2 straw | 3.125– 3.50 | 3.125– 3.50 |
| No. 3 | 2.875– 3.125 | 2.875– 3.125 |
| No. 5 | $0.575–$0.70 | $0.575–$0.70 |

| Prices Effective | June 12 | June 5 |
|---|---|---|
| No. 6 | $0.35 –$0.45 | $0.35 –$0.45 |
| U. G. I. gas oil | 2.625– 3.00 | 2.625– 3.00 |
| Range oil | 3.25 – 3.875 | 3.25 – 4.00 |

## Chicago Naphtha and Solvent

(FOB Group 3 as quoted by two Chicago sellers)

| | | |
|---|---|---|
| Stoddard solvent | 5.875 | 5.875 |
| Cleaners' naphtha | 6.375 | 6.375 |
| V. M. & P. naphtha | 6.375 | 6.375 |
| Mineral spirits | 5.375 | 5.375 |
| Rubber solvent | 6.375 | 6.375 |
| Lacquer diluent | 7.375 | 7.375 |

## Daily range of gasoline prices as reported in PLATT'S OILGRAM (Week Ended June 9, 1939)

| U. S. Motor, (Octane Number determined according to L-3 Method in Okla., Texas and Mid-Western Districts): | June 5 | June 6 | June 7 | June 8 | June 9 |
|---|---|---|---|---|---|
| **62 octane and below:** | | | | | |
| Oklahoma | 4.25 – 4.50 | 4.25 – 4.50 | 4.25 – 4.50 | 4.25 – 4.50 | 4.25 – 4.50 |
| (a) North Texas | 4.125– 4.50 | 4.25 – 4.50 | 4.25 – 4.50 | 4.25 – 4.50 | 4.25 – 4.50 |
| West Texas | (d) 4.00 –4.375 | (d) 4.00 –4.375 | (d) 4.00 –4.375 | (d) 4.00 –4.375 | (d) 4.00 –4.375 |
| Mid-Western (Group 3 basis) | 4.00 – 4.50 | 4.00 – 4.50 | 4.00 – 4.50 | 4.00 – 4.50 | 4.00 – 4.50 |
| **63-66 octane:** | | | | | |
| Oklahoma | 4.50 – 4.75 | 4.50 – 4.75 | 4.50 – 4.75 | 4.50 – 4.75 | 4.50 – 4.75 |
| (a) North Texas | 4.50 – 4.875 | 4.625– 4.875 | 4.625– 4.875 | 4.625– 4.875 | 4.625– 4.875 |
| West Texas | (b)4.75 | (b)4.75 | (b)4.75 | (b)4.75 | (b)4.75 |
| Mid-Western (Group 3 basis) | 4.25 – 4.625 | 4.25 – 4.50 | 4.25 – 4.50 | 4.25 – 4.50 | 4.25 – 4.50 |
| **67-69 octane:** | | | | | |
| Oklahoma | 4.75 – 5.00 | 4.75 – 5.00 | 4.75 – 5.00 | 4.75 – 5.00 | 4.75 – 5.00 |
| (a) North Texas | 4.625– 5.00 | 4.75 – 5.00 | 4.75 – 5.00 | 4.75 – 5.00 | 4.75 – 5.00 |
| West Texas | (d) 4.75 –5.00 | (d) 4.75 –5.00 | (d) 4.75 –5.00 | (d) 4.75 –5.00 | (d) 4.75 –5.00 |
| Mid-Western (Group 3 basis) | 4.375– 4.875 | 4.375– 4.875 | 4.375– 4.875 | 4.375– 4.875 | 4.375– 4.875 |
| **70-72 octane:** | | | | | |
| Oklahoma | 5.00 – 5.25 | 5.00 – 5.25 | 5.00 – 5.25 | 5.00 – 5.25 | 5.00 – 5.25 |
| (a) North Texas | 4.875– 5.375 | 5.00 – 5.375 | 5.00 – 5.375 | 5.00 – 5.375 | 5.00 – 5.375 |
| West Texas | (d) 5.00 –5.50 | (d) 5.00 –5.50 | (d) 5.00 –5.50 | (d) 5.00 –5.50 | (d) 5.00 –5.50 |
| East Texas | (d) 4.625–4.75 | (d) 4.625–4.75 | (d) 4.625–4.75 | (d) 4.625–4.75 | (d) 4.625–4.75 |
| Mid-Western (Group 3 basis) | 4.625– 5.25 | 4.625– 5.25 | 4.625– 5.25 | 4.625– 5.25 | 4.625– 5.25 |
| **Motor Gasoline, 60-64 octane:** | | | | | |
| New York harbor | 5.75 – 6.25 | 5.75 – 6.25 | 5.75 – 6.25 | 5.75 – 6.25 | 5.75 – 6.25 |
| Philadelphia district | 5.75 – 6.50 | 5.75 – 6.50 | 5.75 – 6.50 | 5.75 – 6.50 | 5.75 – 6.50 |
| Baltimore district | 5.75 – 6.25 | 5.75 – 6.25 | (e) 5.75 –6.25 | 5.75 – 6.25 | 5.75 – 6.25 |
| **Motor Gasoline, 65 octane & above:** | | | | | |
| New York harbor | 6.25 | 6.25 | 6.25 | 6.25 | 6.25 |
| Philadelphia district | 6.00 – 6.50 | 6.00 – 6.50 | 6.00 – 6.50 | 6.00 – 6.50 | 6.00 – 6.50 |
| Baltimore district | 6.00 – 7.00 | 6.00 – 7.00 | 6.00 – 7.00 | 6.00 – 7.00 | 6.00 – 7.00 |
| **U. S. Motor, 58-62°:** | | | | | |
| Other districts (Western Penna.) | 4.50 – 5.00 | 4.50 – 5.00 | 4.50 – 5.00 | 4.50 – 5.00 | 4.50 – 5.00 |
| **Motor Gasoline, Min. 65 octane:** | | | | | |
| Bradford-Warren (Western Penna.) | (d) 6.25 –6.75 | (d) 6.25 –6.75 | (d) 6.25 –6.75 | (d) 6.25 –6.75 | (d) 6.25 –6.75 |
| **Motor Gasoline, Min. 70 octane:** | | | | | |
| Bradford-Warren (Western Penna.) | (b)6.50 | (b)6.50 | (b)6.50 | (b)6.50 | (b)6.50 |
| **"Q" Gasoline:** | | | | | |
| Bradford-Warren (Western Penna.) | (d) 6.25 –6.75 | (d) 6.25 –6.75 | (d) 6.25 –6.75 | (d) 6.25 –6.75 | (d) 6.25 –6.75 |
| Other Districts (Western Penna.) | 6.25 – 6.50 | 6.25 – 6.50 | 6.25 – 6.50 | 6.25 – 6.50 | 6.25 – 6.50 |

(a) For shipment to Texas and New Mexico destinations: Group 3 prices are quoted on northern shipment. (b) One refiner quoting. (c) To resellers holding licenses. (d) Two refiners quoting.

# REFINERY TANK CAR MARKETS

*All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days). Prices in cents per gallon except heavy fuel oils in dollars per barrel of 42 gallons, tank car lots, FOB refineries in districts designated, except where otherwise noted. Inter-refinery and export prices not included, unless so stated in the respective markets. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude. Unless otherwise noted, gasoline octane ratings are determined by C.F.R. Motor method, A.S.T.M. D-357-33T; and lubricating oil specifications determined according to A.S.T.M. methods, unless otherwise noted.*

## Natural Gasoline

(Prices to blenders on freight basis shown below. Shipments may originate in any Mid-Continent manufacturing district.)

| Prices Effective | June 12 | June 5 |
|---|---|---|
| **FOB GROUP 3** | | |
| Grade 26-70 | (m)2.75 | (m) 2.625–2.75 |
| **FOB BRECKENRIDGE** | | |
| Grade 26-70 | (l)2.75 | (l)2.625 |
| **CALIFORNIA** (F.o.b. plants in Los Angeles basin) 75-85, 350-375 e.p. for blending | 6.00 – 6.75 | 6.00 – 6.75 |

## Kerosine

| **WESTERN PENNA. REFINERY QUOTATIONS** | | |
|---|---|---|
| *Bradford-Warren:* | | |
| 45 gravity w.w. | 5.00 | 5.00 |
| 46 gravity w.w. | (e)5.375 | (e)5.375 |
| *Other districts:* | | |
| 45 gravity w.w. | 5.00 – 5.25 | 5.00 – 5.25 |
| 46 gravity w.w. | (h)5.125 | (h)5.125 |
| 47 gravity w.w. | 5.25 – 5.50 | 5.25 – 5.50 |
| **CENTRAL MICHIGAN** (a) | | |
| 47-49 gravity w.w. | 5.00 – 5.20 | 5.00 – 5.20 |
| **OKLAHOMA** | | |
| 41-43 gravity w.w. | 3.75 – 4.25 | 3.75 – 4.25 |
| 42-44 gravity w.w. | 3.875– 4.625 | 3.875– 4.625 |
| **KANSAS** (For Kansas destinations only) | | |
| 41-43 gravity w.w. | (e)4.125 | (e)4.125 |
| 42-44 gravity w.w. | 4.125– 4.50 | 4.125– 4.50 |
| **N. TEX.** (b) | | |
| 41-43 gravity w.w. | 4.00 – 4.50 | 4.00 – 4.50 |
| **N. LA.** (For shipment to La. and Ark.) | | |
| 41-43 gravity w.w. | (h) 3.75 –4.125 | (h) 3.75 –4.125 |
| **ARK.** (F.o.b. Ark. plant of one refiner for shipment to Ark. and La.) | | |
| 41-43 gravity w.w. | 4.25 | 4.25 |
| **CALIFORNIA** | | |
| 40-43 gravity w.w. | 5.00 – 7.00 | 5.00 – 7.00 |

## Gas *and* Fuel Oils

| **WESTERN PENNA. REFINERY QUOTATIONS** | | |
|---|---|---|
| *Bradford-Warren:* | | |
| 36-40 gravity | (e)4.625 | (e)4.625 |
| *Other districts:* (Excluding Pittsburgh District Prices) | | |
| 36-40 gravity | 4.25 | 4.25 |
| **CENTRAL MICHIGAN** (a) | | |
| P.W. Distillate | 4.25 – 4.50 | 4.25 – 4.50 |
| No. 3 gas oil, Str. | 4.00 – 4.25 | 4.00 – 4.25 |
| U.G.I. gas oil | 3.75 – 4.00 | 3.75 – 4.00 |
| *Fuel Oils* (Vis. at 100): | | |
| 500-700 Vis. | 2.375– 2.50 | 2.00 – 2.50 |
| 300-500 Vis. | 2.50 – 2.75 | 2.50 – 2.75 |
| 100-300 Vis. | 2.75 – 3.25 | 2.625– 3.25 |
| **OKLAHOMA** | | |
| No. 1 prime white | 3.375– 3.875 | 3.375– 3.875 |
| No. 1 straw | (e)3.375 | (e)3.375 |
| No. 2 straw | 3.25 – 3.375 | 3.25 – 3.375 |
| No. 2 dark | (h) 2.75 –3.25 | (h) 2.75 –3.25 |
| U.G.I. gas oil | (h) 3.00 –3.25 | (h) 3.00 –3.25 |
| 28-30 gravity fuel oil | (e)3.25 | (e)3.25 |
| 28-30 gravity zero fuel | 2.50 – 3.25 | 2.50 – 3.25 |
| 24-26 gravity fuel | (e) $0.85–$0.90 | (e) $0.85–$0.90 |
| 14-16 gravity fuel | (e)$0.70 | (e)$0.70 |
| No. 6 fuel | (h) $0.35-$0.45 | (h) $0.35–$0.45 |
| Range oil | (h)3.625 | (h)3.625 |
| **KANSAS** (For Kans. destinations only). | | |
| No. 1 p.w. fuel oil | 3.75 – 3.875 | 3.75 – 3.875 |
| 10-14 gravity fuel oil | $0.45 –$0.80 | $0.45 –$0.80 |
| **N. TEX.** (b) | | |
| No. 1 Prime white | (e)3.75 | (e)3.75 |
| **N. LA.** (For shipment to La. and Ark.) | | |
| 20-24 gravity fuel | (e) $0.95–$1.05 | (e) $0.95–$1.05 |
| 16-20 gravity fuel | (e) $0.75–$0.85 | (e) $0.75–$0.85 |
| 10-14 gravity fuel | (e) $0.65–$0.75 | (e) $0.65–$0.75 |
| **ARK.** (F.o.b. Ark. plant of one refiner, for shipment to Ark. and La.) | | |
| No. 2 fuel | 3.375 | 3.375 |
| 28-30 gravity gas oil, zero | 3.125 | 3.125 |
| Tractor Fuel | (j)4.625 | (j)4.625 |

| Prices Effective | June 12 | June 5 |
|---|---|---|
| **CALIFORNIA** | | |
| *San Joaquin Valley:* | | |
| Heavy fuel | $0.50 –$0.75 | $0.50 –$0.75 |
| Light fuel | $0.70 –$0.85 | $0.70 –$0.85 |
| Diesel fuel (per gal.) | 2.25 – 4.00 | 2.25 – 4.00 |
| Stove dist. (per gal.) | 2.75 – 5.00 | 2.75 – 5.00 |
| *Los Angeles:* | | |
| Heavy fuel | $0.50 –$0.90 | $0.50 –$0.90 |
| Light fuel | $0.60 –$1.00 | $0.60 –$1.00 |
| Diesel fuel (per gal.) | 1.75 – 4.00 | 1.75 – 4.00 |
| Stove dist. (per gal.) | 2.00 – 5.00 | 2.00 – 5.00 |
| *San Francisco:* | | |
| Heavy fuel | $0.95 | $0.95 |
| Light fuel | $1.05 | $1.05 |
| Diesel fuel (per gal.) | 4.50 | 4.50 |
| Stove dist. (per gal.) | 5.50 | 5.50 |

*Note:* All above heavy fuels meet Pacific specification 400; light fuel, spec. 300; Diesel fuels, spec. 200; and stove distillate, spec. 100.

## Neutral Oils

| **WESTERN PENNA. REFINERY QUOTATIONS** | | |
|---|---|---|
| *Viscous Neutrals No. 3 col. (Viscosity at 70° F.)* | | |
| 200 Vis. (180 at 100°) 420-425 fl. | | |
| 0 p.t. | (e)19.50 | (e)19.50 |
| 10 p.t. | (e)18.50 | (e)18.50 |
| 15 p.t. | (e)18.00 | (e)18.00 |
| 25 p.t. | 16.50 –17.00 | 16.50 –17.00 |
| 150 Vis. (143 at 100) 400-405 fl. | | |
| 0 p.t. | (e)18.50 | (e)18.50 |
| 10 p.t. | (e)17.50 | (e)17.50 |
| 15 p.t. | (e)16.50 | (e)16.50 |
| 25 p.t. | 14.50 –15.50 | 14.50 –15.00 |
| **SOUTH TEXAS** | | |
| **Via Color** | | |
| Pale Oils: (*Vis. at 100°F.*) | | |
| 100 No. 1½-2½ | 4.50 – 5.00 | 4.50 – 5.00 |
| 200 No. 2-3 | 6.00 – 6.25 | 6.00 – 6.25 |
| 300 No. 2-3 | 6.50 – 6.75 | 6.50 – 6.75 |
| 500 No. 2½-3½ | 7.50 – 7.75 | 7.50 – 7.75 |
| 750 No. 3-4 | 8.00 – 8.25 | 8.00 – 8.25 |
| 1200 No. 3-4 | 8.375– 8.75 | 8.375– 8.75 |
| 2000 No. 4 | 8.50 – 9.25 | 8.50 – 9.25 |
| Red Oils: | | |
| 200 No. 5-6 | 6.00 – 6.25 | 6.00 – 6.25 |
| 300 No. 5-6 | 6.50 – 6.75 | 6.50 – 6.75 |
| 500 No. 5-6 | 7.50 – 7.75 | 7.50 – 7.75 |
| 750 No. 5-6 | 8.00 – 8.25 | 8.00 – 8.25 |
| 1200 No. 5-6 | 8.375– 8.75 | 8.375– 8.75 |
| 2000 No. 5-6 | 8.50 – 9.25 | 8.50 – 9.25 |

**Note:** Red oil prices cover oils with green cast; blue cast red oils are slightly lower in some cases.

**MID-CONTINENT** (Vis. at 100° F.; F.o.b. Tulsa basis).

| Pale Oils: **(0 to 10 P.P.)** | | |
|---|---|---|
| **Vis. Color** | | |
| 60-85—No. 2 | 5.50 | 5.50 |
| 86-110—No. 2 | 6.00 | 6.00 |
| 150—No 3 | 9.00 | 9.00 |
| 180—No. 3 | 9.50 –10.00 | 9.50 –10.00 |
| 200—No. 3 | 10.00 –10.50 | 10.00 –10.50 |
| 250—No. 3 | 11.00 –11.50 | 11.00 –11.50 |
| 280—No. 3 | 12.50 | 12.50 |
| 300—No. 3 | 13.00 | 13.00 |
| Red Oils: | | |
| 180—No. 5 | (e)9.00 | (e)9.00 |
| 200—No. 5 | 9.00 – 9.50 | 9.00 – 9.50 |
| 280—No. 5 | (h) 11.50–11.75 | (h) 11.50–11.75 |
| 300—No. 5 | (h)12.00 | (h)12.00 |

Note: The following oils, of 15 to 25 p.p., are generally quoted these amounts under 0-10 p.p.; viscous oils, 0.5c; non-viscous, 0.25c. Viscous oils (150-300 vis.), No. 4 color, generally are quoted 0.5c above No. 5 color oils.

**CHICAGO** (Vis. at 100° F.)

| **Pale Oils 0 to 10 p.p.** | | |
|---|---|---|
| **Vis. Color** | | |
| 60-85—No. 2 | 7.25 | 7.25 |
| 86-110—No. 2 | 7.75 | 7.75 |
| 150—No. 3 | 9.00 | 9.00 |
| 180—No. 3 | 10.00 | 10.00 |
| 200—No. 3 | 10.50 | 10.50 |
| 250—No. 3 | 11.50 | 11.50 |

| Prices Effective | June 12 | June 5 |
|---|---|---|
| **CHICAGO (Continued)** | | |
| Red Oils: | | |
| 180—No. 5 | 9.00 | 9.00 |
| 200—No. 5 | 9.50 | 9.50 |
| 250—No. 5 | 10.50 | 10.50 |
| 280—No. 5 | 11.50 | 11.50 |
| 300—No. 5 | 11.75 | 11.75 |

**Note:** Viscous oils, 15 to 30 p.p. are quoted 0.5c lower; 60-85 and 86-110 No. 2 non-viscous oils, 15 to 30 p.p., 0.25c lower. To obtain delivered prices in Chicago, add 0.25c per gal.

## Cylinder Stocks

| **MID-CONTINENT** (F.o.b. Tulsa basis) | | |
|---|---|---|
| **Bright Stocks:** | | |
| 190-200 Vis. at 210° D. | (e)19.00 | (e)19.00 |
| 150-160 Vis. at 210° D: | | |
| 0 to 10 p.p. | 14.25 –16.00 | 14.25 –16.00 |
| 10 to 25 p.p. | 13.50 –15.00 | 13.50 –15.00 |
| 25 to 40 p.p. | (h) 13.25–13.50 | (h) 13.25–13.50 |
| 150-160 vis. at 210° E. | 12.50 –14.50 | 12.50 –14.50 |
| 120 Vis. at 210° D: | | |
| 0 to 10 p.p. | (h) 13.75–14.50 | (h) 13.75–14.50 |
| 25 to 40 p.p. | (e)12.75 | (e)12.75 |
| 600 S.R. Dark Green | (e)5.50 | (e)5.50 |
| 600 S.R. Olive Green | (h) 7.00 –7.50 | (h) 7.00 –7.50 |
| 631 S.R. | (e)12.50 | (e)12.50 |
| Black Oil | (h) 3.50 –4.00 | (h) 3.50 –4.00 |
| **CHICAGO** (Viscosity at 210°) | | |
| **Unfiltered Steam Refined:** | | |
| 140 | 9.00 | 9.00 |
| 160 | 10.00 | 10.00 |
| 200 | 11.00 | 11.00 |
| **Bright stocks, 160 vis. at 210. No. 8 color:** | | |
| 0 to 10 p.p. | 15.75 | 15.75 |
| 15 to 25 p.p. | 14.75 | 14.75 |
| 30 to 40 p.p. | 14.25 | 14.25 |
| E filtered Cyl. Stock | 13.50 | 13.50 |

**Note:** To obtain prices delivered in Chicago, add 0.25c per gal.

| **WESTERN PENNA. REFINERY QUOTATIONS** | | |
|---|---|---|
| 600 S.R. filterable | 8.00 –10.00 | 8.00 –10.00 |
| 650 S.R. | 10.00 –11.50 | 10.00 –11.50 |
| 600 fl. | 10.50 –12.00 | 10.50 –12.00 |
| 630 fl. | 13.00 –14.00 | 13.00 –14.00 |
| **Bright stock, 145-155 vis. at 210°, 540-550 flash, No. 8 color:** | | |
| 10 p.t. | 18.50 –19.50 | 18.50 –19.50 |
| 15 p.t. | 17.50 –18.50 | 17.50 –18.50 |
| 25 p.t. | 15.50 –16.50 | 15.50 –16.50 |

## Petrolatums

**WESTERN PENNA.** (In bbls., carloads; in tank cars, 0.5c per lb. less. One refiner reports he equalizes freight with nearest refinery to destination).

| | | |
|---|---|---|
| Snow White | 5.875– 6.125 | 5.875– 6.125 |
| Lily White | 4.875– 5.125 | 4.875– 5.125 |
| Cream White | 3.875– 4.125 | 3.875– 4.125 |
| Light Amber | 2.50 | 2.50 |
| Amber | 2.25 | 2.25 |
| Red | (e)2.125 | (e)2.125 |

## Wax

| **WESTERN PENNA. REFINERY QUOTATIONS** In bbls., carloads, New York. | | |
|---|---|---|
| 122-124 A.m.p., w.c. scale | (h)3.00 | (e)3.00 |
| 124-126 A.m.p., w.c. scale | 3.00 | 3.00 |
| **OKLAHOMA** (In bbls. or burlap bags, carloads) | | |
| 124-126 A.m.p., w.c. scale | (h)3.00 | (h)3.00 |

**CHICAGO** (FOB Chicago district refinery of one refiner, in bags or slabs loose, carloads. Melting points are E.M.P. (A.S.T.M.) methods; add 3° F. to convert into A.m.p.)

| *Fully refined:* | | |
|---|---|---|
| 122-124 (bags only) | 4.25 | 4.25 |
| 125-127 | 4.35 | (i)4.35 |
| 127-129 | 4.70 | (i)4.70 |
| 130-132 | 5.00 | (i)5.00 |
| 132-134 | 5.25 | (i)5.25 |
| 135-137 | 6.00 | (i)6.00 |

(a) Prices FOB. Central Michigan refinery group basis, for shipment within Mich. Shipments may originate at plants outside Central group. (b) For shipment to Texas and New Mexico destinations: Group 3 prices quoted on northern shipments. (c) Excluding Detroit shipment. (e) One refiner quoting. (f) No quotations reported. (g) To resellers holding licenses. (h) Two refiners quoting (j) For shipment to Ark. points only. (k) Two suppliers quoting. (l) Quotations. (m) Sales.

# TANK WAGON MARKETS

*Tank car, tank wagon, dealer, and service station prices for gasoline* **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes, where levied, are indicated in footnotes. Dealer discounts are shown in footnotes; for commercial consumer discounts, see NPN for March 29, April 12, April 19 and June 7, 1939, or write to NPN. These prices in effect June 12, 1939, as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

## S. O. New Jersey

**Essolene**
**(*Regular Grade*)**

| | Consumer Tank Car | Dealer T.W. | Gasoline Taxes | Kerosine T.W. |
|---|---|---|---|---|
| *Atlantic City, N. J. | 6.9 | 8.7 | 4 | 7 |
| *Newark, N. J. | 6.9 | 8.7 | 4 | 7 |
| Annapolis, Md. | 7.85 | 9.35 | 5 | 8 |
| Baltimore, Md. | 7.25 | 8.75 | 5 | 8 |
| Cumberland, Md. | 8.65 | 11.15 | 5 | 10 |
| Washington, D. C. | 7.5 | 9 | 3 | 9.5 |
| Danville, Va. | 8.45 | 10.95 | 6 | 12.9 |
| Norfolk, Va. | 7.25 | 9.75 | 6 | 11.5 |
| Petersburg, Va. | 7.55 | 10.05 | 6 | 11.7 |
| Richmond, Va. | 7.55 | 10.05 | 6 | 10.7 |
| Roanoke, Va. | 8.75 | 11.25 | 6 | 11 |
| Charleston, W. Va. | 8.05 | 10.55 | 6 | 12.6 |
| Parkersburg, W. Va. | 7.35 | 9.35 | 6 | 11.2 |
| Wheeling, W. Va. | 8.35 | 10.25 | 6 | 12.2 |
| Charlotte, N. C. | 8.4 | 10.9 | 7 | 11.8 |
| Hickory, N. C. | 8.95 | 11.45 | 7 | 12.3 |
| Mt. Airy, N. C. | 8.8 | 11.3 | 7 | 12.2 |
| Raleigh, N. C. | 8.15 | 10.65 | 7 | 11.5 |
| Salisbury, N. C. | 8.45 | 10.95 | 7 | 11.9 |
| Charleston, S. C. | 7.25 | 9.75 | 7 | 10.6 |
| Columbia, S. C. | 8.25 | 10.75 | 7 | 11.6 |
| Spartanburg, S. C. | 8.95 | 11.45 | 7 | 12.4 |

*Discount to undivided dealers*: thru territory, except New Jersey points, which see in "Note" below: Dealer t.w. price less 0.5c per gal.

*Effective Dec. 1, 1938, S. O. New Jersey posted a minimum retail resale price of 11.2c thru New Jersey, except Trenton area and Cumberland county.

*Note*: While the above posted prices continue at Atlantic City and Newark, N. J., dealers will pay a net price of 8.2c per gal. for Essolene. Dealers having pumps marked only Esso, Essolene and "Standard" White gasoline will pay 7.7c per gal. for Esolene.

*Kerosine Discount*: 1c off t.w. price for 25 gals., or more, under contract thru territory (Baltimore City contract not necessary) except no discount in state of New Jersey.

## Socony-Vacuum Oil Co., Inc.

**(*S. O. New York Division*)**

**Socony Mobilgas**
**(*Regular Grade*)**

| | Consumer Tank Car | "Split" Dealer T.W. | Gasoline Taxes | Kerosine T.W. |
|---|---|---|---|---|
| Metropolitan N.Y. City: | | | | |
| ■ Boroughs of Manhattan, Bronx and | | | | |
| ▮ Brooklyn (Kings and | | | | |
| ▮ Queens) | 6.8 | 8.3 | *5 | 6.75 |
| Borough of Richmond (Staten Is.) | 6.8 | 8.5 | *5 | 6.75 |
| Albany, N. Y. | 6.7 | 8.7 | 5 | 7 |
| Binghamton, N. Y. | 7.8 | 9.7 | 5 | 8 |
| Buffalo, N. Y. | 7.4 | 7.05 | 5 | 7.5 |
| Jamestown, N. Y. | 7.1 | 7.9 | 5 | 7.5 |
| Plattsburg, N. Y. | 7.3 | 9.7 | 5 | 7.5 |
| Rochester, N. Y. | 7.6 | 8.5 | 5 | 7.75 |
| Syracuse, N. Y. | 7.3 | 9.2 | 5 | 7.25 |
| Danbury, Conn. | 7.5 | 9 | 4 | 7.75 |
| Hartford, Conn. | 7.1 | 9.1 | 4 | 6.50 |
| New Haven, Conn. | 7 | 8.25 | 4 | 6 |
| Bangor, Me. | 7.1 | 8.7 | 5 | 7 |
| Portland, Me. | 6.7 | 7.8 | 5 | 6.75 |
| Boston, Mass. | 6.7 | 8 | 4 | 6.5 |
| Concord, N. H. | 7.5 | 9.7 | 5 | 7.5 |
| Lancaster, N. H. | 8.3 | 10.7 | 5 | 8.5 |
| Manchester, N. H. | 7.4 | 9.3 | 5 | 7.25 |
| Providence, R. I. | 6.7 | 8.3 | 4 | 6.5 |
| Burlington, Vt. | 7.2 | 8.5 | 5 | 7.25 |
| Rutland, Vt. | 7.6 | 8 | 5 | 7.5 |

*Plus 2% city sales tax computed at time of each sale.

*Discount to undivided dealers*: 0.5c less than "split" dealer t.w.

## Atlantic Refining

**Atlantic White Flash Gasoline**
**(*Regular Grade*)**

| | Commercial Tank Car | Dealer T.W. | Gasoline Taxes | Kerosine T.W. |
|---|---|---|---|---|
| Philadelphia, Pa. | 7 | 8.5 | 5 | 10 |
| Pittsburgh | 8 | 9.5 | 5 | 10.5 |
| Allentown | 7.5 | 9 | 5 | 10.5 |
| Erie | 8 | 9 | 5 | 10 |
| Scranton | 7.5 | 9 | 5 | 10.5 |
| Altoona | 8 | 8.5 | 5 | 10.5 |
| Harrisburg | 7.5 | 9 | 5 | 10.5 |
| Williamsport | 8 | 9.5 | 5 | 10.5 |
| Dover, Del. | ... | 9 | 5 | 10.5 |
| Wilmington | ... | 8.5 | 5 | 9.75 |
| Boston, Mass. | ... | 8 | 4 | 6.25 |
| Springfield, Mass. | ... | 8.8 | 4 | 7 |
| Worcester, Mass. | ... | 8 | 4 | 7 |
| Fall River, Mass. | ... | 7.9 | 4 | 7 |
| Hartford, Conn. | ... | 9.1 | 4 | 6.5 |
| New Haven, Conn. | ... | 8.25 | 4 | 7 |
| Providence, R. I. | ... | 8.3 | 4 | 6.5 |
| Atlantic City, N. J. | ... | 8.2 | 4 | 7 |
| Camden, N. J. | ... | 8.1 | 4 | 7 |
| Trenton, N. J. | ... | 8.2 | 4 | 7 |
| Annapolis, Md. | ... | 9.35 | 5 | 9.5 |
| Baltimore, Md. | ... | 8.75 | 5 | 8 |
| Hagerstown, Md. | ... | 9.85 | 5 | 10 |
| Richmond, Va. | ... | 10.05 | 6 | 10.7 |
| Wilmington, N. C. | ... | 9.85 | 7 | 10.8 |
| Brunswick, Ga. | ... | 8.5 | 7 | *10.5 |
| Jacksonville, Fla. | ... | 8.5 | 8 | 10 |

*Georgia has kerosine tax of 1c per gal., not included in above price.

*Discount to undivided dealers*: Dealer t.w. less 0.5c per gal. except in Georgia and Florida, dealer t.w. and undivided dealer price is same.

## S. O. Ohio

**Sohio X-70 Gasoline**
(Regular Grade)

| | Consumer T.W. | †Divided Dlr. | ‡S.S. | Gasoline Taxes | Kerosine T.W. |
|---|---|---|---|---|---|
| Ohio, Statewide | 10.5 | 9.5 | 12.5 | 5 | *12 |
| Akron | 10.5 | 8.5 | 10.5 | 5 | *8.5 |
| Cincinnati | 10.5 | 9 | 11.5 | 5 | *12 |
| Cleveland | 10.5 | 9.5 | 12.5 | 5 | *12 |
| Columbus | 10.5 | 9 | 11.5 | 5 | *12 |
| Dayton | 10.5 | 9 | 11.5 | 5 | *12 |
| Marietta | 10.5 | 9 | 11.5 | 5 | *12 |
| Portsmouth | 10.5 | 9.5 | 12.5 | 5 | *12 |
| Toledo | 10.5 | 8 | 10.5 | 5 | *12 |
| Youngstown | 10.5 | 9 | 11.5 | 5 | *11.5 |

**Renown Gasoline**
(Third Grade)

| | | | | | |
|---|---|---|---|---|---|
| Ohio, Statewide | 10.5 | 9.5 | 12.5 | 5 | .... |
| Akron | 10.5 | 8.5 | 10.5 | 5 | .... |
| Cincinnati | 10.5 | 9 | 11.5 | 5 | .... |
| Cleveland | 10.5 | 9.5 | 12.5 | 5 | .... |
| Columbus | 10.5 | 9 | 11.5 | 5 | .... |
| Dayton | 10.5 | 9 | 11.5 | 5 | .... |
| Marietta | 10.5 | 9 | 11.5 | 5 | .... |
| Portsmouth | 10.5 | 9.5 | 12.5 | 5 | .... |
| Toledo | 10.5 | 8 | 10.5 | 5 | .... |
| Youngstown | 10.5 | 9 | 11.5 | 5 | .... |

*Note*: Prices at other Ohio points may be obtained by writing NPN.

*Ohio has kerosine tax of 1c per gal., not included in above prices.

†This price also to authorized agents, exclusive of 0.5c rental.

‡Prices are at company-operated service stations.

*Discount to undivided dealers*: 0.5c less than divided dealer t.w.

## S. O. Kentucky

**Crown Gasoline**
**(*Regular Grade*)**

| | Consumer T.W. | Net Dlr. | Gasoline Taxes | Kerosine T.W. |
|---|---|---|---|---|
| Covington, Ky. | 11.5 | 8.5 | 6 | 9.5 |
| Lexington, Ky. | 13 | 10 | 6 | 10 |
| Louisville, Ky. | 11.5 | 8.5 | 6 | 9 |
| Paducah, Ky. | 12 | 9 | 6 | 9 |
| Jackson, Miss. | 10.5 | 7.5 | 7 | *9 |
| Vicksburg, Miss. | 12 | 9 | 7 | *8.5 |
| Birmingham, Ala. | 13 | 10 | *8 | 8.5 |
| Mobile, Ala. | 12 | 9 | *9 | 8.5 |
| Montgomery, Ala. | 12 | 10 | *9 | *9.5 |
| Atlanta, Ga. | 13.5 | 10.5 | 7 | *8 |
| Augusta, Ga. | 12.5 | 9.5 | 7 | *8 |
| Macon, Ga. | 13 | 10 | 7 | *9 |
| Savannah, Ga. | 11.5 | 8.5 | 7 | *7 |
| Jacksonville, Fla. | 11.5 | 8.5 | 8 | 8 |
| Miami, Fla. | 11.5 | 8.5 | 8 | 8 |
| Pensacola, Fla. | 11.5 | 8.5 | *9 | 8 |
| Tampa, Fla. | 11.5 | 8.5 | 8 | 8 |

**Kyso Gasoline**
**(*Third Grade*)**

| | | | | |
|---|---|---|---|---|
| Covington, Ky. | 10 | 7.5 | 6 | .... |
| Lexington, Ky. | 11.5 | 9 | 6 | .... |
| Louisville, Ky. | 10 | 7.5 | 6 | .... |
| Paducah, Ky. | 10 | 7.5 | 6 | .... |
| Jackson, Miss. | 8.5 | 6 | 7 | .... |
| Vicksburg, Miss. | 10 | 7.5 | 7 | .... |
| Birmingham, Ala. | 11 | 8.5 | *8 | .... |
| Mobile, Ala. | 9.5 | 7 | *9 | .... |
| Montgomery, Ala. | 11 | 8.5 | *9 | .... |
| Atlanta, Ga. | 11.5 | 9 | 7 | .... |
| Augusta, Ga. | 11 | 8.5 | 7 | .... |
| Macon, Ga. | 11.5 | 9 | 7 | .... |
| Savannah, Ga. | 9.5 | 7 | 7 | .... |
| Jacksonville, Fla. | 10 | 7.5 | 8 | .... |
| Miami, Fla. | 10 | 7.5 | 8 | .... |
| Pensacola, Fla. | 10 | 7.5 | *9 | .... |
| Tampa, Fla. | 10 | 7.5 | 8 | .... |

*Discounts to all tank wagon consumers*: Effective Jan. 4, 1937, thru territory, on Crown gasoline, 3c per gal. below consumer t.w. price; on Kyso, 2.5c below, regardless of quantity purchased, per month

*Taxes: In the tax column is included these city and county gasoline taxes at the following points: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Montgomery, Ala. have kerosine taxes of 1c per gal., and Mississippi 0.5c, not included in above prices.

## S. O. Indiana

**Red Crown (*Regular Grade*)**
**Stanolind (*Third Grade*)**

| | Red Crown Cons. T.W. | Dealer Red Crown | Dealer Stanolind | Gasoline Taxes | Kerosine T.W. |
|---|---|---|---|---|---|
| Chicago, Ill. | 11.1 | 9.1 | 7.4 | 4 | 10 |
| Decatur, Ill. | 11.1 | 9.6 | 7.7 | 4 | 10 |
| Joliet, Ill. | 11.1 | 9.6 | 9.1 | 4 | 10 |
| Peoria, Ill. | 11.1 | 9.6 | 9.1 | 4 | 10 |
| Quincy, Ill. | 10.9 | 9.4 | 6.8 | 4 | 9.7 |
| Indianapolis, Ind. | 11.8 | 10.3 | 9.8 | 5 | *10.7 |
| Evansville, Ind. | 11.6 | 10.1 | 8 | 5 | *10.5 |
| South Bend, Ind. | 12.1 | 10.6 | 10.1 | 5 | *10 |
| Detroit, Mich. | 9.1 | 7.6 | 7.1 | 4 | 7.1 |
| Grand Rapids, Mich. | 10 | 8.5 | 8 | 4 | 9.7 |
| Saginaw, Mich. | 11.8 | 9.1 | 8.1 | 4 | 9.3 |
| Green Bay, Wis. | 11.9 | 10.4 | 8.3 | 5 | 10.8 |
| Milwaukee, Wis. | 10.4 | 8.9 | 7.8 | 5 | 10.2 |
| La Crosse, Wis. | 11.5 | 10 | 9.5 | 5 | 10.4 |
| Minneapolis-St. Paul | 11.5 | 10 | 9.5 | 5 | 10.4 |
| Duluth, Minn. | 11.9 | 10.4 | 9.9 | 5 | 10.8 |
| Mankato, Minn. | 11.5 | 10 | 9.5 | 5 | 9.4 |
| Des Moines, Ia. | 10.9 | 9.4 | 8.5 | 4 | *9.8 |
| Davenport, Ia. | 11.1 | 9.6 | 9.1 | 4 | *10 |
| Mason City, Ia. | 11.3 | 9.8 | 9.3 | 4 | *10.2 |
| St. Louis, Mo. | 10.2 | 8.7 | 7.5 | *4 | 8 |
| Kansas City, Mo. | 10.4 | 8.9 | 7.4 | *4 | 8 |
| St. Joseph, Mo. | 10.4 | 8.5 | 7.5 | *4 | 8.4 |
| Fargo, N. D. | 12.7 | 11.2 | 10.7 | 4 | 11.6 |
| Huron, S. D. | 12 | 10.5 | 10 | 5 | 10.9 |
| Wichita, Kans. | 9.9 | 7.6 | 7 | 4 | 7.4 |

*Taxes: in the tax column is included these city and state gasoline taxes at following points: Kansas City, St. Joseph and St. Louis, 1c city tax. Kerosine taxes: Indiana has 4c, Iowa 3c per gal. state tax, not included in above prices.

## S. O. Nebraska

**Standard Red Crown Gasoline**
**(*Regular Grade*)**

| | T.W. | Dealer | Gasoline Taxes | Kerosine T.W. |
|---|---|---|---|---|
| Omaha, Neb. | 11.5 | 10 | 6 | 10.3 |
| McCook | 11.5 | 8.5 | 6 | 9 |
| Norfolk | 10.5 | 9.4 | 6 | 9 |
| North Platte | 12.3 | 10.4 | 6 | 11.1 |
| Scottsbluff | 11.5 | 9.4 | 6 | 11 |

## S. O. Louisiana

**Essolene**
**(*Regular Grade*)**

| | Consumer Tank Car | Dealer T.W. | Gasoline Taxes | Kerosine T.W. |
|---|---|---|---|---|
| Little Rock, Ark. | 7.25 | 9.75 | 7.5 | 10 |
| Alexandria, La. | 6.75 | 9.25 | 8 | *11.5 |
| Baton Rouge, La. | 6.75 | 9.25 | 8 | *9.5 |
| New Orleans, La. | 6.75 | 9.25 | *10 | *9 |
| Lake Charles, La. | 6.75 | 9.25 | 8 | *11.5 |
| Shreveport, La. | 5.5 | 8 | 8 | *10 |
| Lafayette, La. | 7 | 9.5 | 8 | *10 |
| Bristol, Tenn. | 10.25 | 8.5 | 8 | 13 |
| Chattanooga, Tenn. | 9.5 | 11 | 8 | 14 |
| Knoxville, Tenn. | 10 | 12.5 | 8 | 14.5 |
| Memphis, Tenn. | 8 | 10.5 | 8 | 11 |
| Nashville, Tenn. | 9 | 11.5 | 8 | 12 |

*Taxes: New Orleans gasoline tax includes 7c state, 1c federal, and 2c parish tax. Louisiana has kerosine tax of 1c per gal.; in addition New Orleans has 1c parish tax, none of which are included in above prices.

*Price basis to dealers*: Undivided dealers get dealer price, less 0.5c.

Above prices include these inspection fees on both gasoline and kerosine unless otherwise specified, per gallon, figured on basis of 50 gallons per barrel:
Alabama, 1/40c on gasoline, 1/2c on kerosine; Arkansas, 1/5c per gal. in a single barrel, 1/20c per gal. in bulk; Florida 1/8c; Illinois, 3/100c; Indiana, 1/5o per gal. in lots up to 25 bbls.; 2/25c per gal. in lots of 25 bbls. or more; Kansas, 1/50c, (3/50c can be charged to meet inspection department expenses); Louisiana, 1/32c; Minnesota, 1/25c; Missouri, 3/100c; Nebraska, 3/100c; Nevada, gasoline, 1/20c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma, 2/25c per gal. lots of more than 50, in bbls., 1/5c in lots less than 50 bbls.; South Carolina, 1/8c; South Dakota, 1/10c; Tennessee, 2/5c; and Wisconsin, 3/100c.
Kerosine inspection fee only: Iowa, 3/50c; Michigan, 1/5c per gal.

# TANK WAGON MARKETS

*Tank car, tank wagon, dealer, and service station prices for gasoline* **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1c federal, and state taxes: also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes, where levied, are indicated in footnotes. Dealer discounts are shown in footnotes; for commercial consumer discounts, see NPN for March 29, April 12, April 19 and June 7, 1939, or write to NPN. These prices in effect June 12, 1939, as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

## Humble Oil & Refining Co.

**Humble Motor Fuel**
**(*Regular Grade*)**

| | *T.W. | S.S. | Gasoline Taxes | Kerosine T.W. |
|---|---|---|---|---|
| Dallas, Tex | 8 | 12 | 5 | 8 |
| Ft. Worth, Tex | 8 | 12 | 5 | 7 |
| Houston, Tex | 8 | 12 | 5 | 8 |
| San Antonio, Tex | 9 | 13 | 5 | 8 |

**U. S. Motor Gasoline**
**(*Third Grade*)**

| | | | | |
|---|---|---|---|---|
| Dallas, Tex | 6.5 | .. | 5 | |
| Ft. Worth, Texas | 6.5 | .. | 5 | |
| Houston, Tex | 6.5 | .. | 5 | |
| San Antonio, Tex | 6.5 | .. | 5 | |

**Thriftane**
**(Leaded, 67 Octane, Purple Gasoline)**

| | | | | |
|---|---|---|---|---|
| Dallas | 7 | 10 | 5 | |
| Ft. Worth | 7 | 10 | 5 | |
| Houston | 7 | 10 | 5 | |
| San Antonio | 8 | 11 | 5 | |

*These tank wagon prices apply to all classes o dealers and consumers.

## Continental Oil

**Conoco Bronz-z-z (Regular Grade)**

| | ††T.W. | Dealer | Gasoline Taxes | Kerosene T.W. |
|---|---|---|---|---|
| Denver, Col | 12.5 | .. | 5 | 11.5 |
| Grand Junction, Col | 15 | .. | 5 | 15 |
| Pueblo, Col | 11 | .. | 5 | 9 |
| Casper, Wyo | 14 | .. | 5 | 11.5 |
| Cheyenne, Wyo | 12 | .. | 5 | 13 |
| Billings, Mont | 12 | .. | 6 | 13 |
| Butte, Mont | 13.5 | .. | 6 | 15.5 |
| Great Falls, Mont | 13 | .. | 6 | 15.5 |
| Helena, Mont | 14 | .. | 6 | 15.5 |
| Salt Lake City, Utah | 12 | 12 | 5 | 16 |
| Boise, Ida | 14.1 | 14.1 | 6 | 18 |
| Twin Falls, Ida | 14.6 | 14.6 | 6 | 18 |
| Albuquerque, N. M | 10.5 | 10.5 | †6.5 | 10 |
| Roswell, N. M | 8 | 8 | †6.5 | 8 |
| Santa Fe, N. M | 10.5 | 10.5 | *7 | 10 |
| Ft. Smith, Ark | 9 | .. | 5 | 7.5 |
| Little Rock, Ark | 9 | 25 .. | 7.5 | 8 |
| Texarkana, Ark | 9 | .. | 5 | 8 |
| Muskogee, Okla | 8 | .. | 5 | 7 |
| Oklahoma City, Okla | 8 | .. | 5 | 6.5 |
| Tulsa, Okla | 7 | .. | 5 | 7 |

| | Demand (Third Grade) | Gasoline | |
|---|---|---|---|
| Denver, Col | 10.5 | .. | 5 | .... |
| Grand Junction, Col | 13 | .. | 5 | .... |
| Pueblo, Col | 10 | .. | 5 | .... |
| Casper, Wyo | 12 | .. | 5 | .... |
| Cheyenne, Wyo | 10 | .. | 5 | .... |
| Billings, Mont | 11 | .. | 6 | .... |
| Butte, Mont | 10.5 | .. | 6 | .... |
| Great Falls, Mont | 10 | .. | 6 | .... |
| Helena, Mont | 13 | .. | 6 | .... |
| Salt Lake City, Utah | 11 | 11 | 5 | .... |
| Boise, Ida | 13.1 | 13.1 | 6 | .... |
| Twin Falls, Ida | 13.6 | 13.6 | 6 | .... |
| Albuquerque, N. M | 8 | 8 | †6.5 | .... |
| Roswell, N. M | 7.5 | 7.5 | †6.5 | .... |
| Santa Fe, N. M | 7 | 7 | *7 | .... |
| Ft. Smith, Ark | 6.5 | .. | 5 | .... |
| Little Rock, Ark | 7 | .. | 7.5 | .... |
| Texarkana, Ark | 6.5 | .. | 5 | .... |
| Muskogee, Okla | 7 | .. | 5 | .... |
| Oklahoma City, Okla | 7 | .. | 5 | .... |
| Tulsa, Okla | 7 | .. | 5 | .... |

†Includes city tax of 0.5c.
*Includes 1c city tax.
‡Prices are in t.w. deliveries to consumers and dealers.
**Prices include 0.1c to cover 1-mill tax for toll bridges.
††T.w. price in all states except Utah, Idaho and New Mexico is to consumers and dealers.

## S. O. California

**Standard Gasoline**
**(*Regular Grade*)**

| | T.W. | S.S. | Gasoline Taxes | Kerosine T.W. |
|---|---|---|---|---|
| San Francisco, Cal | 13.5 | 14.5 | 4 | 11.5 |
| Los Angeles, Cal | 13 | 14 | 4 | 10 |
| Fresno Cal | 14.5 | 15.5 | 4 | 12.5 |
| Phoenix, Ariz | 15.5 | 16.5 | 6 | *12.5 |
| Reno, Nev | 15.5 | 16.5 | 5 | 13.5 |
| Portland, Ore | 14 | 15 | 6 | 13.5 |
| Seattle, Wash | 14 | 15 | 6 | †13.5 |
| Spokane, Wash | 15.5 | 16.5 | 6 | †16.5 |
| Tacoma, Wash | 14 | 15 | 6 | †13.5 |

**Flight Gasoline**
**(*Third Grade*)**

| | | | | |
|---|---|---|---|---|
| San Francisco, Cal | 12 | 13 | 4 | .... |
| Los Angeles, Cal | 11.5 | 12.5 | 4 | .... |
| Fresno, Cal | 13 | 14 | 4 | .... |
| Reno, Nev | 14 | 15 | 5 | .... |
| Phoenix, Ariz | 11 | 12 | 6 | .... |
| Portland, Ore | 12.5 | 13.5 | 6 | .... |
| Seattle, Wash | 12.5 | 13.5 | 6 | .... |
| Spokane, Wash | 14 | 15 | 6 | .... |
| Tacoma, Wash | 12.5 | 13.5 | 6 | .... |

*Arizona has kerosine tax of 5c per gal., not included in above prices.

†Washington has 0.25c per gal. tax on kerosine sales, not included in above prices.

*Discount to* 100% *dealers, thru territory*, off posted t.w. prices, on gasolines: on Standard Ethyl, Standard Gasoline and Stanavo Aviation, 3c per gal.; on Flight gasoline, 2c.

## Canada

**PRICES OF IMPERIAL OIL LTD.**

Per Imperial Gallon, which is 1.2 U. S. Gallons

**3-Star Imperial Gasoline**
**(*Regular Grade*)**

| | T.W. | Gasoline Taxes | Kerosine T.W. |
|---|---|---|---|
| Hamilton, Ont | 15 | 8 | 15.5 |
| Toronto, Ont | 15 | 8 | 15.5 |
| Brandon, Man | 21 | 7 | 22 |
| Winnipeg, Man | 19.5 | 7 | 20.5 |
| Regina, Sask | 19 | 7 | 21 |
| Saskatoon, Sask | 21.3 | 7 | 23.3 |
| Edmonton, Alta | 19.5 | 7 | 21.5 |
| Calgary, Alta | 16.5 | 7 | 18.5 |
| Vancouver, B. C | 16 | 7 | 23 |
| Montreal, Que | 14 | 8 | 14.5 |
| St. John, N. B | 13.5 | 10 | 17.5 |
| Halifax, N. S | 13.5 | 10 | 17.5 |

*Discounts* to undivided dealers, 1c off t.w. price, except Maritime Provinces where undivided dealers pay t.w. price. Divided dealers pay t.w. price, thru territory.

## Aviation Gasoline

Following are tank car, tank wagon or dealer prices, as indicated, of aviation gasoline in several marketing territories.

**S. O. OHIO**
***Thru Ohio***
**Esso Aviation**

| | Consumer T.W. | Gasoline Taxes |
|---|---|---|
| 74 octane | 15.5 | 5 |
| 80 octane | 16.5 | 5 |
| 87 octane | 17.5 | 5 |

*Discounts*: For delivery on contract to hangar operators and resellers: 2c below consumer posted t.w. price, shown above.

**S. O. INDIANA**
**Stanavo Ethyl Aviation Gasoline**
**73 Octane Number**

| | | |
|---|---|---|
| Chicago, Ill | 14.9 | |
| Detroit, Mich | 16.5 | 4 |
| Milwaukee, Wis | 15.1 | 5 |
| Minneapolis, Minn | 15.3 | 5 |
| St. Louis, Mo | 14.5 | 3 |
| Kansas City, Mo | 14.2 | *4 |
| Fargo, N. D | 16.5 | 4 |
| Huron, S. D | 15.8 | 5 |

*Includes 1c city tax.

**HUMBLE OIL & REFINING CO.**
**74 Octane Aviation Gasoline, Clear**

| | Tank Car |
|---|---|
| FOB Baytown, Tex | 8.5 |

**CONTINENTAL OIL CO.**
**Conoco Special Gasoline**

| | Dealer Price | Gasoline Taxes |
|---|---|---|
| Denver, Colo | 14.5 | 5 |
| Cheyenne, Wyo | 15 | 5 |
| Helena, Mont | 22 | 6 |
| Salt Lake City, Utah | 17.5 | 5 |
| Albuquerque, N. M | 14 | *6.5 |

*Includes city tax of 0.5c.

**S. O. CALIFORNIA**
**Stanavo Aviation Gasoline**

| | T.W. | |
|---|---|---|
| Phoenix, Ariz | 17.5 | 6 |
| Los Angeles, Cal | 15 | 4 |
| San Francisco, Cal | 15.5 | 4 |
| Reno, Nev | 17.5 | 5 |
| Portland, Ore | 16 | 6 |
| Seattle, Wash | 16 | 6 |
| Spokane, Wash | 19 | 6 |

*Note*: For discounts, etc., see note under Standard and Flight gasoline above.

## Naphtha (In Tank Wagon)

**S. O. NEW JERSEY**

**Posted Tank Wagon Prices**

| | Mineral Spirits | V.M.&P. |
|---|---|---|
| Newark, N. J | 11.5 | 15.5 |
| Baltimore, Md | 15.5 | .... |
| Washington, D. C | 15 | .... |

Discounts: Buyers taking following quantities at one time, get these discounts: Newark, 2c per gal. on 200 gals. or more; less than 200 gals., 0.5c higher price. Baltimore 2c off on 25 to 100 gals. and 3c on over 100 gals. Washington, 2c off to contract buyers.

**SOCONY-VACUUM OIL CO.**

| | | |
|---|---|---|
| Buffalo, N. Y | 10.5 | 12 |
| *New York City | 9.5 | 10.5 |
| Rochester, N. Y | 12 | 12 |
| Syracuse, N. Y | 12 | 14.5 |
| Boston, Mass | 11 | 11 |
| Bridgeport, Conn | 11 | 11.5 |
| Hartford, Conn | 10.5 | 11 |
| Providence, R. I | 11 | 12 |

*Prices apply to consumers only in quantities over 1,000 gals. annually. For quantities under 1,000 gals. annually, add 0.5c per gal.

**ATLANTIC REFINING CO.**

| | | |
|---|---|---|
| Philadelphia, Pa | 11.5 | 12.5 |
| Lancaster, Pa | 13 | 14 |
| Pittsburgh, Pa | 12.5 | 14.5 |

*Note*: Prices for Mineral Spirits also apply to Stoddard Solvent; and prices for V.M.&P. Naphtha apply also to Light Cleaners Naphtha.

**S. O. OHIO**

| | S.R. Solvent | V.M.&P. Naphtha |
|---|---|---|
| Thru Ohio | 12.5 | 13.5 |

*Note*: V.M.&P. Naphtha prices also apply on Dry Cleaners naphtha and special Varnolene; Varnolene and Sohio Solvent 0.5c below these prices. Discounts to contract consumers off t.w. price; 300 to 999 gals., 0.5c; 1,000 to 2,499 gals., 0.75c; 2,500 to 4,999 gals., 1c; 5,000 or more gals., 1.5c.

**S. O. INDIANA**
*(Prices include state and federal taxes)*

| | Oleum Spirits | V.M.&P. Naphtha | Stanisol |
|---|---|---|---|
| Chicago, Ill | 16.2 | 16.5 | 15.9 |
| Detroit, Mich | 19.2 | 18.2 | 19.7 |
| Kansas City, Mo | 13.9 | 14.9 | 14.4 |
| St. Louis, Mo | 14.2 | 15.2 | 12.9 |
| Milwaukee, Wis | 18.8 | 19.8 | 19.3 |
| Minneapolis, Minn | 19 | 20 | 17.7 |

*Note*: All prices, with exception of Missouri points, include state tax. Prices shown are base prices, before discounts.

## Naphtha (In Tank Cars)

**In Tank Cars (F. o. b. refinery or seaboard terminal except Ohio, delivered price.)**

| | V.M.&P. Naphtha | Solvent |
|---|---|---|
| Baltimore | 10.5 | 9.5 |
| New York Harbor | 10 | 9 |
| Philadelphia district | 10.5 | 9 |
| Boston | 10.5 | 9.5 |
| Providence | 10.5 | 9.5 |
| †Ohio points, delivered | 8.5 | *8 |

*This is on rubber solvent.
†In Ohio, prices on D.C. naphtha and special Varnolene are same as V.M.&P.; on Varnolene and Sohio Solvent, prices are 0.125c less than on V.M.&P.

## Price Changes

**Dates and amounts of changes. See table for full current prices.**

*Socony-Vacuum Oil—All Motor Gasolines:*
T.w. up from 0.1c to 0.5c, thru New York and New England, except Vermont, lower Connecticut, western New York and Syracuse, June 13. This change is not reflected in prices shown in table of this issue, due to prices in the table being those in effect June 12.
Consumer t.c. advanced 0.1c, thru New York and New England, except Western New York including Buffalo and Rochester unchanged, June 9.
Buffalo dealer t.w. up 0.25c, June 2.
Bangor dealer t.w. up 0.9c, May 26.
Rutland dealer t.w. up 1c, May 27.

*S. O. Nebraska—Standard Red Crown Gasoline:*
T.w. and dealer prices up 0.5c at points where prices were 0.5c or more below normal, thru Nebraska, June 9. Omaha was unchanged and North Platte t.w. unchanged.

*Humble Oil & Refining Co.—U. S. Motor Gasoline:*
S.s. prices discontinued, due to sale of this grade discontinued at company operated service stations, at Dallas and Ft. Worth, June 2.

*Thriftane Gasoline:*
T.w. and s.s. prices posted on this grade, Dallas and Ft. Worth, June 2.

*Continental Oil—Conoco Bronz-z-z and Demand Gasolines:*
T.w. price now posted in Colorado, Wyoming, Montana, Arkansas, Texas and Oklahoma is to all classes of trade, including dealers and consumers. The dealer price column is eliminated beginning with this issue, in these states.

*Conoco Bronz-z-z:*
T.w. up 1c, thru Oklahoma, June 9.
T.w. and dealer prices up 0.5c, thru New Mexico, June 12.
Texarkana t.w. up 1c, June 8.

*Demand:*
Pueblo dealer up 1c, April 27.
Little Rock cut 1c, June 7.
T.w. up 1c, thru Oklahoma, June 9.

*S. O. California—Standard and Flight:*
Spokane cut 0.5c, June 6.

**Fuel Oil**

*Atlantic Refining—Nos. 5 and 6:*
Philadelphia t.w. up 0.5c, June 1.

## Coming Meetings

**13th International Congress of Carbide, Acetylene, Oxy-Acetylene Welding & Allied Industries,** Munich, Germany, June 25 to July 1.

**American Society for Testing Materials,** 42nd annual meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 26 to 30.

**American Institute of Mining and Metallurgical Engineers,** regional meeting, San Francisco, July 10 to 13.

**American Society of Mechanical Engineers,** San Francisco, July 10 to 15.

**American Society for Testing Materials,** San Francisco, July 23 to 30.

**The Eastern United States Michigan Oil & Gas Exposition,** Mt. Pleasant, Mich., Aug. 1 to 6.

**Retail Gasoline Dealers Assn. of Wisconsin,** 7th annual convention, Hotel Retlaw, Fond du Lac, Wis., Aug. 8, 9.

**American Institute of Mining and Metallurgical Engineers,** Industrial Minerals Division, Tuscaloosa, Ala., Sept. 2, 3, 4.

**American Society of Mechanical Engineers,** Hotel Pennsylvania, and Engineering Societies Bldg., 29 West 39th St., New York, Sept. 4 to 8.

**Oil Workers International Union,** Hammond Ind., Sept. 5.

**American Chemical Society,** Detroit, Sept. 9 to 13.

**Montana National Bituminous Conference,** Sun Valley, Idaho, Sept. 11 to 14.

**National Assn. of Petroleum Retailers,** Des Moines, Iowa, Sept. 11 to 14.

**American Chemical Society,** Boston, Mass., Sept. 11 to 15.

**National Petroleum Assn.,** 37th annual meeting, Hotel Traymore, Atlantic City, N. J., Sept. 13, 14, 15.

**Oil Trades Assn. of New York,** sports day, Pelham Country Club, Pelham, N. Y., Sept. 19.

**New Jersey Oil Trades Assn.,** fall outing, Sept. 28.

**National Lubricating Grease Institute,** Stevens Hotel, Chicago, Oct. 2, 3.

**American Institute of Mining and Metallurgical Engineers,** Petroleum Division, Galveston, Tex., Oct. 4, 5, 6.

**American Gas Assn.,** annual convention, New York, Oct. 9, 10.

**Independent Petroleum Assn. of America,** 10th annual meeting, Ft. Worth, Tex., Oct. 18-20.

**National Tax Conference,** Palace Hotel, San Francisco, week of Oct. 16.

**40th Annual National Automobile Show,** Grand Central Palace, New York, week of Oct. 15.

**National Safety Congress and Exposition,** Convention Hall, Atlantic City, N. J., Oct. 16 to 20.

**American Institute of Mining and Metallurgical Engineers,** Petroleum Division, Los Angeles, Oct. 19, 20.

**West Virginia Petroleum Assn.,** Hotel Daniel Boone, Charleston, W. Va., Oct. 25.

**Colorado Petroleum Industries Committee,** annual convention, Shirley-Savoy Hotel, Denver, Oct. 27.

**Oil Trades Assn. of New York,** annual banquet, Waldorf-Astoria Hotel, New York, Nov. 1.

**National Motor Truck Show,** Navy Pier, Chicago, Nov. 8-16.

**American Petroleum Institute,** 20th annual meeting, Stevens Hotel, Chicago, Nov. 13-17.

**American Institute of Chemical Engineers,** 32nd annual meeting, Providence-Biltmore Hotel, Providence, R. I., Nov. 15, 16, 17.

**American Society of Mechanical Engineers,** Philadelphia, Pa., Dec. 4 to 7.

**17th Exposition of Chemical Industries,** Grand Central Palace, New York, Dec. 4 to 9.

## "Weatherized" Gasoline Introduced by Aetna

Specifications for its "weatherized" gasoline are changed six times a year, Aetna Oil Service Inc. of Louisville, refiner and marketer, is telling its dealers and the public in a series of advertisements being run in newspapers in its territory.

"Aetna engineers decided to find the solution to the problem of furnishing gasoline to give good operation in all seasons", reads one piece of copy. "After numerous tests they found the only practical way to a solution would be to change their gasoline specifications to meet the change in weather conditions".

The copy, each piece of which is headed "Motorist Service Bulletin", ties in sales talks for the company's line of tires and its motor oils with the copy on its motor fuel. The company's sales of tires through its dealers have doubled this year over a year ago, it is brought out.

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Payrolls for all industries in Pennsylvania were at 143.2 in February, with oil producing well up in the list with 120.7, according to a study made by Pennsylvania Department of Labor and Industry in co-operation with Federal Reserve Bank of Philadelphia and U. S. Bureau of Labor Statistics.

## TANK WAGON MARKETS, HEATING OILS

*Prices in Effect June 12, 1939*

*Following are posted tank wagon prices of various grades of heating oil at the points shown in various territories. Prices are in cents per gallon.*

**S. O. NEW JERSEY**

| | No. 1 | No. 2 | No. 4 |
|---|---|---|---|
| Atlantic City, N. J. | 7.0 | 5.75 | 5.75 |
| Newark | 7.0 | 5.75 | 5.75 |
| Annapolis, Md | .... | 6.5 | .... |
| Baltimore | 6.75 | 6.25 | 5.75 |
| Washington, D. C. | 7.00 | 6.50 | 6.50 |
| Norfolk, Va. | 7.0 | 6.0 | 6.0 |
| Petersburg | 7.25 | 6.25 | .... |
| Richmond | 7.25 | 6.25 | 6.25 |
| Charlotte, N. C. | 8.75 | 7.75 | .... |
| Hickory | .... | 8.25 | .... |
| Raleigh | 8.75 | 7.25 | .... |
| Charleston, S. C. | 8.5 | 7.0 | .... |
| Columbia | 9.5 | 8.0 | .... |
| Spartanburg | 10.2 | 8.7 | .... |

**SOCONY-VACUUM OIL CO. INC.**
**(S. O. New York Division)**

| | No. 2 | No. 3 | No. 4 |
|---|---|---|---|
| New York City | 5.75 | 5.75 | 5.75 |
| Albany, N. Y. | 5.75 | 5.75 | 5.25 |
| Rochester, N. Y. | 6.75 | 6.75 | 6.75 |
| Boston, Mass. | 5.50 | 5.50 | 5.50 |
| Bangor, Me. | 6.00 | 6.00 | 6.00 |
| Manchester, N. H. | 6.00 | 6.00 | 6.00 |
| Burlington, Vt. | 6.25 | 6.25 | 6.25 |
| Hartford, Conn. | 6.00 | 6.00 | 6.00 |
| New Haven, Conn. | 5.50 | 5.50 | 5.50 |
| Providence, R. I. | 5.50 | 5.50 | 5.50 |

**Note:** Prices for No. 1 fuel in Socony-Vacuum territory same as for kerosine which see in tank wagon table for various cities; prices change with kerosine.

**ATLANTIC REFINING**

| | Numbers 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Phila., Pa. | 7.75 | 6.0 | 6.0 | 6.0 | 3.75 | 3.00 |
| Allentown, Pa. | 8.5 | 6.5 | 6.5 | 6.5 | .... | .... |
| Wilmington, Del. | 7.75 | 5.5 | 5.5 | 5.5 | .... | .... |
| Springfield, Mass. | 7.0 | 5.5 | .... | .... | .... | .... |
| Worcester, Mass. | 7.0 | 5.50 | .... | 5.50 | .... | .... |
| Hartford, Conn. | 6.5 | 6.0 | .... | 6.0 | .... | .... |

**S. O. OHIO**

| | No. 1 | No. 2 | No. 3 |
|---|---|---|---|
| Columbus Division and Cleveland | 7.50 | 7.50 | 7.00 |
| City of Lima | 8.00 | 8.00 | 7.00 |
| Rest of Ohio | 8.00 | 8.00 | 7.50 |

*Note: S. O. Ohio prices are for full compartment hose dumps, buckel dumps are 0.5c per gallon higher.*

**S. O. INDIANA**
**Stanolex Fuel and Furnace Oils**

| | No. 1 Fuel | Stanolex Furnace |
|---|---|---|
| Chicago | (a)6.75 | 6.75 |
| Indianapolis | .... | (b)7.8 |
| Detroit | .... | 7.1 |
| Milwaukee | 8.4 | 7.7 |
| Minneapolis | 7.8 | 7.8 |
| St. Louis | 7.7 | (c)6.7 |
| Kansas City | 6.8 | 6.8 |

(a) For 400 gals. and over; 150 to 399 gals., 7.25c; 1 to 149 gals., 8.25c.
(b) Excluding 4c state tax.
(c) For 400 gals. & over; 100 to 399 gals., 7c; 1 to 99 gals., 8c.
*Note: Small-lot deliveries of light fuel oils range up to 2c higher than above quotations.*

## Group 3 Freight Rates

**To Division Headquarters Points of Standard Oil Co. of Indiana**

| | Gasoline-Kerosine Cents per Cwt. | Gasoline-Kerosine Cents per gal. 6.6 lbs. | Distillate-Gas Oil-Fuel Oil Cents per Cwt. | Distillate-Gas Oil-Fuel Oil Cents per gal. 7.4 lbs. |
|---|---|---|---|---|
| Chicago, Ill. | 40 | 2.640 | 32 | 2.368 |
| Decatur, Ill. | 39 | 2.574 | 31 | 2.294 |
| Joliet, Ill. | 40 | 2.640 | 32 | 2.368 |
| Peoria, Ill. | 39 | 2.574 | 31 | 2.294 |
| Quincy, Ill. | 36 | 2.376 | 29 | 2.146 |
| Indianapolis, Ind. | 48 | 3.168 | 39 | 2.886 |
| Evansville, Ind. | 46 | 3.036 | 37 | 2.738 |
| South Bend, Ind. | 53 | 3.498 | 42 | 3.108 |
| Detroit, Mich. | 64 | 4.224 | 51 | 3.774 |
| Gd. Rapids, Mich. | 62 | 4.092 | 50 | 3.700 |
| Saginaw, Mich. | 66 | 4.356 | 53 | 3.922 |
| Green Bay, Wis. | 51 | 3.366 | 41 | 3.034 |
| Milwaukee, Wis. | 43 | 2.838 | 34.5 | 2.553 |
| LaCrosse, Wis. | 46 | 3.036 | 37 | 2.738 |
| Min'ap'is-St. Paul | 46 | 3.036 | 37 | 2.738 |
| Duluth, Minn. | 52 | 3.432 | 41.5 | 3.071 |
| Mankato, Minn. | 46 | 3.036 | 37 | 2.738 |
| Des Moines, Ia. | 36 | 2.376 | 29 | 2.146 |
| Davenport, Ia. | 39 | 2.574 | 31 | 2.294 |
| Mason City, Ia. | 42 | 2.772 | 33.5 | 2.479 |
| St. Louis, Mo. | 33 | 2.178 | 26.5 | 1.961 |
| Kansas City, Mo. | 28 | 1.848 | 22.5 | 1.665 |
| St. Joseph, Mo. | 28 | 1.848 | 22.5 | 1.665 |
| Fargo, N. D. | 63 | 4.158 | 50.5 | 3.737 |
| Minot, N. D. | 83 | 5.478 | 66.5 | 4.921 |
| Huron, S. D. | 53 | 3.498 | 42.5 | 3.145 |
| From Ponca City | 13 | *0.858 | 13 | †0.858 |
| Wichita | | | | |
| From Tulsa | 21 | *1.386 | 21 | †1.386 |
| From Cushing | 19 | *1.254 | 19 | †1.254 |

*This rate also includes distillate rate at 6.6 lbs. per gal.
†This rate is exclusive of distillate which is based on 6.6 lbs. per gal. from Ponca City, Tulsa and Cushing, Okla., to Wichita. Includes only gas oil and fuel oil.
NOTE: There is no Group 3 rate to Wichita, Kans.

# SEABOARD MARKETS, EXPORT AND COASTWISE

*All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days). In cargo markets, spot shipment is 90 days. Prices in cents per gallon, except heavy fuel oil in dollars per barrel, in tank car lots, f.o.b. refineries or seaboard terminals in districts designated, unless otherwise noted. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude. Unless otherwise noted, gasoline octane ratings are determined by C.F.R. Motor method, A.S.T.M. D-357-33T; and lubricating oil specifications determined according to A.S.T.M. methods, unless otherwise noted.*

## Eastern Domestic

**(Inter-refinery and export prices not included.)**

**MOTOR GASOLINE**

| Prices Effective | June 12 | |
|---|---|---|
| District: | 60-64 Oct. | 65 Oct. & Above |
| N. Y. harbor | 5.75 – 6.25 | 6.25 – 6.35 |
| (a) N. Y. harbor | 5.75 – 6.00 | 6.00 |
| Philadelphia | 5.75 – 6.50 | 6.00 – 6.50 |
| Baltimore | 5.75 – 6.25 | 6.00 – 7.00 |
| Norfolk | 6.25 – 6.50 | 6.25 – 6.50 |
| Wilmington, N. C. | 6.00 – 6.50 | 6.25 – 7.00 |
| Charleston, S. C. | 6.00 – 6.50 | 6.25 – 7.00 |
| Savannah | 5.75 – 6.50 | 6.00 – 6.50 |
| Jacksonville | 5.75 – 6.50 | 6.00 – 6.50 |
| Portland | 6.25 – 6.50 | 6.50 – 7.00 |
| Boston | 5.75 – 6.35 | 6.00 – 6.50 |
| Providence | 5.75 – 6.35 | 6.00 – 6.50 |

**WATER WHITE KEROSINE**

| District: | | | |
|---|---|---|---|
| N. Y. harbor | 4.25 – 4.375 | Charleston | 4.75–5.25 |
| (a) N. Y. harbor | 4.125– 4.25 | Savannah | 5.00–5.25 |
| Philadelphia | 4.50 – 4.75 | Jacksonville | 5.00–5.25 |
| Baltimore | 4.50 – 4.75 | Portland | 4.375 |
| Norfolk | 4.75 | Boston | 4.25–4.375 |
| Wilmington, N.C. | 4.75 – 5.00 | Providence | 4.25–4.375 |

**(b) FUEL OILS**

| | N. Y. harb. | N. Y. harb. barges |
|---|---|---|
| No. 1 | 4.25 – 4.375 | 4.125– 4.25 |
| Nos. 2-3 | 3.75 – 3.875 | 3.625– 3.75 |
| No. 4 | 3.625– 4.00 | 3.50 – 3.75 |
| No. 5 | (m)$1.15 | ..... |
| No. 6 | $1.05 | ..... |

| | Phila. dist. | Balt. dist. |
|---|---|---|
| No. 1 | 4.50 – 4.75 | 4.50 – 4.75 |
| Nos. 2-3 | 4.25 | 4.25 |
| No. 4 | 4.00 – 4.25 | 4.00 – 4.25 |
| No. 5 | $1.15 –$1.25 | $1.15 –$1.25 |
| No. 6 | $1.05 | $1.05 |

| | Bost. dist. | Prov. dist. |
|---|---|---|
| No. 1 | 4.25 – 4.375 | 4.25 – 4.375 |
| Nos. 2-3 | 3.75 – 3.875 | 3.75 – 3.875 |
| No. 4 | 3.75 – 4.00 | 3.75 – 4.00 |
| No. 5 | $1.25 | $1.15 |
| No. 6 | $1.05 | $1.05 |

| District: | (c) Bunker C Fuel | (c) Diesel Oil |
|---|---|---|
| N. Y. harbor | $1.05 | $1.65 –$1.70 |
| Philadelphia | $1.05 | $1.65 |
| Baltimore | $1.05 | $1.65 |
| Norfolk | $1.05 | $1.65 |
| Charleston | $1.00 | $1.65 –$1.75 |
| Savannah | $1.00 | $1.785 |
| Jacksonville | $1.00 | $1.785 |
| Tampa | $0.95 | $1.785 |
| Portland | $1.05 | $1.75 |
| Boston | $1.05 | $1.65 |
| Providence | $1.05 | $1.65 |

| | Gas Oil 28-34 Gravity | Diesel Oil Shore Plants |
|---|---|---|
| N. Y. harbor | 3.875– 4.125 | 3.75 – 4.00 |
| Philadelphia dist. | 4.25 | .... |
| Baltimore dist. | 4.25 | .... |
| Norfolk dist. | 4.25 | .... |
| Savannah dist. | .... | 4.25 |
| Jacksonville dist. | .... | 4.25 |

## Pacific Export

(c) (Quotations are at seaboard, Los Angeles, in cargo lots, cents per gal., except where otherwise noted.)

| Prices Effective | June 12 | June 5 |
|---|---|---|
| U. S. Motor, under 65 oct. | 4.00 – 4.125 | 4.00 – 4.125 |
| 400 e.p. blend, under 65 oct. | 4.125– 4.25 | 4.125– 4.25 |
| 400 e.p. blend 65 oct. & above | 4.25 – 4.50 | 4.25 – 4.50 |
| (d) 38-40 gravity, w.w. kerosine | 4.25 – 4.50 | 4.25 – 4.50 |
| 41-43 gravity, w.w. kerosine | 4.50 – 4.75 | 4.50 – 4.75 |
| 44 gravity, w.w. kerosine | 5.00 – 5.25 | 5.00 – 5.25 |
| *In Cargo lots, per bbl.* | | |
| Diesel fuel, 24 & above | $0.95 –$1.05 | $0.95 –$1.05 |
| Diesel fuel, under 24 | $0.85 –$0.90 | $0.85 –$0.90 |
| (f) 30-34 gravity, diesel (gas oil) | $1.05 –$1.20 | $1.05 –$1.20 |
| (g) Grade C fuel oil | $0.58 –$0.68 | $0.58 –$0.68 |

| Prices Effective | June 12 | June 5 |
|---|---|---|
| *In Ships' Bunkers, or deep tank lots, per bbl.:* | | |
| (f) Diesel fuel oil | $1.35 –$1.45 | $1.35 –$1.45 |
| (g) Grade C fuel oil | $0.70 –$0.90 | $0.70 –$0.90 |
| *Cased Goods:* (Per case) | | |
| U. S. Motor | $1.35 –$1.45 | $1.35 –$1.45 |
| 400 e.p. blend, under 65 octane | $1.40 –$1.50 | $1.40 –$1.50 |
| 375-400 e.p. blend, 65 oct. & above | $1.50 –$1.60 | $1.50 –$1.60 |
| (d) 40-43 gravity, w.w. kerosine | $1.30 –$1.40 | $1.30 –$1.40 |
| Kerosine, p.w. | $1.25 –$1.35 | $1.25 –$1.35 |

## New York Export

(Cents per gal. in bbls. FAS. New York)

**CYLINDER OILS (Pennsylvania Products)**

| | | |
|---|---|---|
| *Bright stock:* | | |
| Light, 25 p.t. | 23.00 | 23.00 |
| *Neutral oil:* | | |
| 200 3 color, 25 p.t. | 24.00 | 24.00 |
| 150 3 color, 25 p.t. | 22.00 | 22.00 |
| 600 s.r., unfiltered | 15.50 | 15.50 |
| 650 s.r., unfiltered | 17.50 | 17.50 |
| 600 fl., s.r. | 18.00 | 18.00 |
| 630 fl., s.r. | 20.50 | 20.50 |

## Wax, Domestic *and* Export

(A.S.T.M. Tests. Melting points, however, are A.M.P., 3 higher than E.M.P. Export prices, FAS., carloads. Domestic prices, FOB. refineries, in bags, carloads, with 0.2c discount allowed for shipment in bulk, except where noted below. Scale solid; fully refined, slabs in bags)

| Prices Effective | June 12 | |
|---|---|---|
| | New York | |
| | Domestic | Export |
| 124-6 Y.C. scale | 2.95 – 3.00 | 2.95 – 3.00 |
| 122-4 W.C. scale | 3.00 | 3.00 |
| 124-6 W.C. scale | 3.00 | 3.00 |
| 123-5 Fully rfd. | 4.00 | 3.625 |
| 125-7 Fully rfd. | 4.15 | 3.75 |
| 128-30 Fully rfd. | (h)4.25 | 4.00 |
| 130-2 Fully rfd. | (h)4.60 | 4.25 |
| 133-5 Fully rfd. | (h)4.90 | 4.65 |
| 135-7 Fully rfd. | (h)5.15 | 5.00 |
| | New Orleans | |
| | Domestic | Export |
| 124-6 Y.C. scale | 2.95 – 3.00 | 2.95 – 3.00 |
| 122-4 W.C. scale | 3.00 | 3.00 |
| 124-6 W.C. scale | 3.00 | 3.00 |
| 123-5 Fully rfd. | 4.00 | 3.625 |
| 125-7 Fully rfd. | 4.15 | 3.75 |
| 128-30 Fully rfd. | (h)4.25 | 4.00 |
| 130-2 Fully rfd. | (h)4.60 | 4.25 |
| 133-5 Fully rfd. | (h)4.90 | 4.65 |

## Gulf Coast

(FOB. ship at Gulf for domestic and export shipment; minimum 20,000 bbls.; representing traders' opinions)

**MOTOR GASOLINE**

| | June 12 | | |
|---|---|---|---|
| | 60-62 Gravity, 400 e.p. | 61-63 Gravity, 390 e.p. | 64-66 Gravity, 375 e.p. |
| 60 octane | 4.50 | 4.50 | 4.50 |
| 61 octane | (n) | (n) | (n) |
| 62 octane | (n) | (n) | (n) |
| 63 octane | (n) | (n) | (n) |
| 64 octane | (n) | (n) | (n) |
| 65 octane | 4.875– 5.00 | 4.875– 5.00 | 4.875– 5.00 |
| 66 octane | (n) | (n) | (n) |
| 67 octane | (n) | (n) | (n) |
| 68 octane | 5.125– 5.25 | 5.125– 5.25 | 5.125– 5.25 |
| 70 octane | 5.25 – 5.50 | 5.25 – 5.50 | 5.25 – 5.50 |

| Prices Effective | June 12 | June 5 |
|---|---|---|
| **KEROSINE** | | |
| 44 gravity, w.w. | 3.75 – 3.875 | 3.75 – 4.00 |
| 41-43 gravity, w.w. | 3.50 | 3.50 – 3.75 |
| 41-43 gravity, p.w. | 3.50 | 3.50 – 3.75 |

| Prices Effective | June 12 | June 5 |
|---|---|---|
| **GAS AND BUNKER OILS** | | |
| Gas Oil (i): | | |
| Below 43 diesel index | 3.125 | 3.00 – 3.125 |
| 43-47 diesel index | 3.25 | 3.125– 3.25 |
| 48-52 diesel index | 3.25 – 3.375 | 3.25 – 3.375 |
| 53-57 diesel index | 3.375– 3.50 | 3.375– 3.50 |
| 58 & above | 3.50 | 3.50 – 3.625 |
| **LIGHT FUEL OILS** | | |
| No. 1 | 3.50 | 3.50 – 3.75 |
| No. 2 | 3.125– 3.25 | 3.00 – 3.375 |
| **DIESEL and BUNKER OILS** | | |
| (c) Diesel Oil | $1.45 | $1.45 |
| (c) Grade C bunker oil | $0.80 –$0.85 | $0.80 –$0.85 |
| Grade C bunker oil, in cargoes | $0.79 –$0.81 | $0.77 –$0.80 |

**MID-CONTINENT LUBRICATING OILS**

(Cents per gal. at Gulf; in bbls., FAS.; in bulk, FOB. terminals)

| | June 12 | |
|---|---|---|
| | (j) Barrels | Bulk |
| 190-200 vis. D. 210 brt. stock | 22.00 | 17.80 |
| 150-160 vis. D 210 brt. stock: | | |
| 0-10 p.p. | 18.50 –19.00 | 14.25 –14.30 |
| 10-25 p.p. | 18.00 –18.50 | 13.75 –13.80 |
| 150-160 vis. E. 210 brt. stock | 18.00 | 13.80 |
| 120 vis. D 210 brt. stock | 17.25 –17.50 | 13.00 –14.50 |

| | June 12 Bulk | June 5 Bulk |
|---|---|---|
| 180 vis. No. 3 color neutral: | | |
| 0-10 p.p. | 10.05 –11.50 | 10.05 –11.50 |
| 15-30 p.p. | 9.55 –11.00 | 9.55 –11.00 |
| 200 vis. No. 3 color neutral: | | |
| 0-10 p.p. | 10.80 –12.00 | 10.80 –12.00 |
| 15-30 p.p. | 10.30 –11.50 | 10.30 –11.50 |
| 600 s.r. olive green | 9.00 –11.25 | 9.00 –11.25 |
| 600 s.r. dark green | 7.00 – 9.25 | 7.00 – 9.25 |

**SOUTH TEXAS LUBRICATING OILS**

(Vis. at 100° cold test 0, bulk export shipment, FOB terminals.)

| | | |
|---|---|---|
| *Unfiltered Pale Oils:* | | |
| Vis. Color | | |
| 100 No. 3 | 4.50 – 4.75 | 4.50 – 4.75 |
| 200 No. 3 | 6.00 – 6.25 | 6.00 – 6.25 |
| 300 No. 3 | 6.50 – 6.75 | 6.50 – 6.75 |
| 500 No. 3½ | 7.50 | 7.50 |
| 750 No. 4 | 8.00 – 8.25 | 8.00 – 8.25 |
| 1200 No. 4 | 8.375– 8.75 | 8.375– 8.75 |
| 2000 No. 4 | 8.50 – 9.00 | 8.50 – 9.00 |
| *Red Oils:* | | |
| Vis. Color | | |
| 100 No. 5-6 | 4.50 – 4.75 | 4.50 – 4.75 |
| 200 No. 5-6 | 6.00 – 6.25 | 6.00 – 6.25 |
| 300 No. 5-6 | 6.50 – 6.75 | 6.50 – 6.75 |
| 500 No. 5-6 | 7.50 | 7.50 |
| 750 No. 5-6 | 8.00 – 8.25 | 8.00 – 8.25 |
| 1200 No. 5-6 | 8.375– 8.75 | 8.375– 8.75 |
| 2000 No. 5-6 | 8.50 – 9.00 | 8.50 – 9.00 |

**Note:** Red oil prices cover oils with green cast; prices for blue cast red oils are slightly lower in some cases.

## Tanker Rates

(Approximate freight rates to Continental ports shillings per ton of 2240 lbs., British sterling: U. S. ports cents per bbl.)

**Rates Effective June 12**

| | Crude & /or Fuel | | Refined Oil & /or Spirits | |
|---|---|---|---|---|
| | Last Paid | Owners Ask | Last Paid | Owners Ask |
| Gulf-U.K. /Cont.(k) | 11/ | 12/-12/6 | 12/6 | 12/6-13/3 |
| Aruba-U.K. /Cont.(k) | 10/ | 10/3-10/6 | 10/ | 10/6-11/3 |
| Gulf-N. Atlantic(l) (not E. of N.Y.): Hvy. Crude & fuel, (10 to 19.9 gravity) | 20c | 19-20c | .... | .... |
| Light Crude, (30 Grav. or Lighter) | 18.5c | 17-18c | .... | .... |
| Gasoline | .... | .... | 17c | 17-18c |
| Kerosine | .... | .... | 18c | 18-19c |
| Light Fuel | .... | .... | 19c | 19-20c |

(a) In barge lots. (b) Fuel oils meet specifications of U. S. Commercial standards CS12-35. (c) Ships' bunkers. Lighterage, additional at some points, not included. (d) 150 fire point. (e) For San Francisco cargo prices, add 5c per bbl. to cargo prices shown above. (f) Pacific Specification 200. (g) Pacific Specification 400. (h) Shipment in bags or in bulk (i) Less than ½ of 1% sulfur. (j) Second-hand barrels. (k) Continental ports in range between Bordeaux and Hamburg, both inclusive. (l) Venezuela loading, same rate; Tampico, 2c to 3c per bbl. additional. (m) Low pour test, low viscosity, No. 5 generally quoted at $1.25. (n) No quotations reported.

# CRUDE OIL MARKETS

*Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates as given*

## EASTERN FIELDS

***Posted by Joseph Seep Purchasing Agency***

(Effective March 6, 1939, except Corning Jan. 24, 1939)

Penna. Grade Oil in Southwest Penna. Pipe Lines.....$1.65
Penna. Grade Oil in Eureka Pipe Lines (West Virginia).....$1.59
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.).....$1.55
Corning Oil in Buckeye Pipe Lines (Ohio)..$1.02

***Posted by Other Companies***

Tide Water Associated Oil Co.
Bradford-Allegany district (Penna. and N. Y.) (Effective March 6, 1939).....$2.00
*The Pennzoil Co.: (Effective March 6, 1939)
Penna. Grade Oil in National Transit Lines *1 93
*The Pennzoil Co. posts $1.93 in Cochran, Franklin, Hamilton and Doolittle, Pa. fields, prices in other lower districts range down to $1.88 per bbl. at well.

## MICHIGAN

***Posted by Pure Oil Co.***

Midland, Midland County (April 17, 1939)...$0.975

***Posted by Simrall Corp.***

(Effective April 20, 1939)

Crystal, Greendale, Porter and Wise.....$0.975
Beaverton, Buckeye, Bentley, Edenville.....$0.95
Freeman.....$0.89

(Effective April 18, 1939)

West Branch, Arenac, and equal grades....$0.74

***Posted by Bay Pipe Line Corp.***

(Effective April 20, 1939)

Bentley and Buckeye.....$0.95
Saginaw and Wise.....$0.975

## CENTRAL STATES FIELDS

***Posted by Ohio Oil Co.***

(Effective June 8, 1939)

Illinois and Western Indiana.....$0.95
Illinois Basin.....$1.05

***Posted by Sohio Corp.***

(Effective June 8, 1939)

Illinois Basin.....$1.05

***Posted by Carter Oil Co.***

(Effective June 10, 1939)

Louden, Fayette County, Ill.....$1.05

***Posted by Ashland Oil & Transportation Co.***

(Effective June 9, 1939)

Somerset Oil in Ashland Lines, Kentucky:
Big Sandy River.....$1.02
Kentucky River.....$1.10

***Posted by Stoll Oil Refining Co.***

(Effective June 10, 1939)

Stoll Pipe Line Oil (Ky.).....$0.90

***Posted by Fordsville Gathering Line, Inc.***

(Effective June 9, 1939)

Birk City Field, Ky.....$0.90
Owensboro District, Ky.....$1.00

## CANADIAN FIELDS

***Posted by Imperial Oil Limited***

*Western Ontario*

(Effective Oct. 25, 1938)

Petrolia.....$1.90
Oil Springs.....$1.97

*Alberta—Turner Valley*

(Prices f.o.b. field tankage)

(Effective Jan. 5, 1938)

| Crude Oil | | | |
|---|---|---|---|
| 40-40.9°..... | $1.14 | 53-53.9..... | $1.40 |
| 41-41.9..... | 1.16 | 54-54.9..... | 1.42 |
| 42-42.9..... | 1.18 | 55-55.9..... | 1.44 |
| 43-43.9..... | 1.20 | 56-56.9..... | 1.46 |
| 44-44.9..... | 1.22 | 57-57.9..... | 1.48 |
| 45-45.9..... | 1.24 | 58-58.9..... | 1.50 |
| 46-46.9..... | 1.26 | 59-59.9..... | 1.52 |
| 47-47.9..... | 1.28 | 60-60.9..... | 1.54 |
| 48-48.9..... | 1.30 | 61-61.9..... | 1.56 |
| 49-49.9..... | 1.32 | 62-62.9..... | 1.58 |
| 50-50.9..... | 1.34 | 63-63.9..... | 1.60 |
| 51-51.9..... | 1.36 | 64-64.9..... | 1.62 |
| 52-52.9..... | 1.38 | | |

Crude Naphtha, 65 grav. & above.....$2.14

| Absorption Gasoline | |
|---|---|
| 90% Rec., 20 lb. Reid v.p. | $1.94 |
| 90% Rec., 17 lb. Reid v.p. | $2.08 |

## MID-CONTINENT

**Oklahoma-Kansas**

*(Effective Oct. 11 to 22, 1938; and Feb. 16, 1939)

| *Effective 1938: | S. O. Indiana Oct. 17 | Carter Magnolia Shell Oct. 11 | Continental Texas Co. Oct. 11 | Sinclair-Prairie Oct. 11 |
|---|---|---|---|---|
| Below 21°.. | $0.70 | $0.60 | .... | .... |
| 21-21.9.... | .72 | .63 | .... | .... |
| 22-22.9.... | .74 | .66 | .... | .... |
| 23-23.9.... | .76 | .69 | .... | .... |
| 24-24.9.... | .78 | .72 | .... | .... |
| 25-25.9.... | .80 | .75 | .... | $0.58 |
| 26-26.9.... | .82 | .78 | .... | .63 |
| 27-27.9.... | .84 | .81 | .... | .68 |
| 28-28.9.... | .86 | .84 | $0.86 | .73 |
| 29-29.9.... | .88 | .87 | .88 | .78 |
| 30-30.9.... | .90 | .90 | .90 | .82 |
| 31-31.9.... | .92 | .92 | .92 | .86 |
| 32-32.9.... | .94 | .94 | .94 | .90 |
| 33-33.9.... | .96 | .96 | .96 | .96 |
| 34-34.9.... | .98 | .98 | .98 | .98 |
| 35-35.9.... | 1.00 | 1.00 | 1.00 | 1.00 |
| 36-36.9.... | 1.02 | 1.02 | 1.02 | 1.02 |
| 37-37.9.... | 1.04 | 1.04 | 1.04 | 1.04 |
| 38-38.9.... | 1.06 | 1.06 | 1.06 | 1.06 |
| 39-39.9.... | 1.08 | 1.08 | 1.08 | 1.08 |
| 40 & above.... | 1.10 | 1.10 | 1.10 | 1.10 |

*Effective by Carter Oil, Oct. 13, posting in Okla. only; Continental Oil, Oct. 11, with lowest grade below 29; Magnolia, Oct. 12, posting in Okla. only; Shell, Oct. 22; Sinclair-Prairie, Feb. 16, 1939; S. O. Indiana, Oct. 17; The Texas Co., Oct. 12.

**North-North Central and Central Texas**

| *Effective 1938: | Stanolind Oct. 17 | †Sinclair-Prairie Oct. 11 | *Texas Co. *Continental *Magnolia |
|---|---|---|---|
| Below 21°.. | $0.60 | .... | .... |
| 21-21.9.... | .62 | .... | .... |
| 22-22.9.... | .64 | .... | .... |
| 23-23.9.... | .66 | .... | .... |
| 24-24.9.... | .68 | $0.76 | $0.79 |
| 25-25.9.... | .70 | for | for |
| 26-26.9.... | .72 | oil | oil |
| 27-27.9.... | .74 | below | below |
| 28-28.9.... | .76 | 29°. | 29°. |
| 29-29.9.... | .78 | .78 | .81 |
| 30-30.9.... | .80 | .80 | .83 |
| 31-31.9.... | .82 | .82 | .85 |
| 32-32.9.... | .84 | .84 | .87 |
| 33-33.9.... | .86 | .86 | .89 |
| 34-34.9.... | .88 | .88 | .91 |
| 35-35.9.... | .90 | .90 | .93 |
| 36-36.9.... | .92 | .92 | .95 |
| 37-37.9.... | .94 | .94 | .97 |
| 38-38.9.... | .96 | .96 | .99 |
| 39-39.9.... | .98 | .98 | 1.01 |
| 40 & above. | 1.00 | 1.00 | 1.03 |

*Effective Oct. 11, by Continental, in North Tex.; Oct. 12, by Texas Co. in North & North Central Texas. Texas Co.'s lowest grade is 28-28.9, at $0.79; by Magnolia, Dec. 3, in N. and N. Central Texas.
†Sinclair-Prairie prices are in N. Cent. Texas and Mexia.

**Jefferson County, Texas**

***Posted by Magnolia Petroleum Co.***

**Beaumont**

(Effective Oct. 12, 1938)

| | | | |
|---|---|---|---|
| Below 20°..... | $0.79 | 30-30.9..... | $1.08 |
| 20-20.9..... | .82 | 31-31.9..... | 1.10 |
| 21-21.9..... | .85 | 32-32.9..... | 1.12 |
| 22-22.9..... | .88 | 33-33.9..... | 1.14 |
| 23-23.9..... | .91 | 34-34.9..... | 1.16 |
| 24-24.9..... | .94 | 35-35.9..... | 1.18 |
| 25-25.9..... | .97 | 36-36.9..... | 1.20 |
| 26-26.9..... | 1.00 | 37-37.9..... | 1.22 |
| 27-27.9..... | 1.02 | 38-38.9..... | 1.24 |
| 28-28.9..... | 1.04 | 39-39.9..... | 1.26 |
| 29-29.9..... | 1.06 | 40 & above..... | 1.28 |

*For below 21°.

Oct. 11, '38, Stanolind Oil & Gas Co. posted same gravity and price schedule in West Beaumont field as Magnolia.

## TEXAS FIELDS

***Posted by Humble Oil & Refining Co.***

**West Central Texas*

(Effective Dec. 3, 1938)

| | | | |
|---|---|---|---|
| 24-24.9.....$0.71 | | 33-33.9.....$0.89 | |
| 25-25.9..... | .73 | 34-34.9..... | .91 |
| 26-26.9..... | .75 | 35-35.9..... | .93 |
| 27-27.9..... | .77 | 36-36.9..... | .95 |
| 28-28.9..... | .79 | 37-37.9..... | .97 |
| 29-29.9..... | .81 | 38-38.9..... | .99 |
| 30-30.9..... | .83 | 39-39.9..... | 1.01 |
| 31-31.9..... | .85 | 40 & above..... | 1.03 |
| 32-32.9..... | .87 | | |

*Includes Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, Throckmorton and Young Counties.

*Note:* Effective Oct. 1, 1937, Humble prices are based on 100% tank tables at 60F.

**East Central Texas*

(Effective Oct. 11, 1938)

| | | | |
|---|---|---|---|
| 23-23.9.....$0.78 | | 32-32.9.....$0.96 | |
| 24-24.9..... | .80 | 33-33.9..... | .98 |
| 25-25.9..... | .82 | 34-34.9..... | 1.00 |
| 26-26.9..... | .84 | 35-35.9..... | 1.02 |
| 27-27.9..... | .86 | 36-36.9..... | 1.04 |
| 28-28.9..... | .88 | 37-37.9..... | 1.06 |
| 29-29.9..... | .90 | 38-38.9..... | 1.08 |
| 30-30.9..... | .92 | 39-39.9..... | 1.10 |
| 31-31.9..... | .94 | 40 and above... | 1.12 |

**Posted by Pan American Pipe Line Co.**

(Effective Feb. 15, 1939)

Cayuga, Anderson county.....$0.68
*Including Anderson, Cherokee, Limestone, Navarro counties.

## PANHANDLE TEXAS

***Posted by Humble Oil & Refining Co.***

(Effective Dec. 3, 1938)

| | Gray County | Carson-Hutchinson |
|---|---|---|
| 28-28.9..... | $0.72 | $0.67 |
| 29-29.9..... | .74 | .69 |
| 30-30.9..... | .76 | .71 |
| 31-31.9..... | .78 | .73 |
| 32-32.9..... | .80 | .75 |
| 33-33.9..... | .82 | .77 |
| 34-34.9..... | .84 | .79 |
| 35-35.9..... | .86 | .81 |
| 36-36.9..... | .88 | .83 |
| 37-37.9..... | .90 | .85 |
| 38-38.9..... | .92 | .87 |
| 39-39.9..... | .94 | .89 |
| 40 & above..... | .96 | .91 |

Effective Oct. 11, 1938, Sinclair Prairie posted same prices in Panhandle Texas as Humble posted Dec. 3. Dec. 3, Magnolia met Humble.

## EAST TEXAS

Gulf, Humble, Magnolia, Sinclair Prairie, Stanolind, Texas Co., Tide-Water Associated.....$1.10
*Effective Oct. 11 by Humble, Sinclair Prairie, and Stanolind; Oct. 12 Magnolia, Texas, Tide Water; Oct. 13 by Gulf.

## NORTHEAST TEXAS

**(Posted by Humble, Oct. 11, 1938)**

Talco.....$0.55

**(Posted by Magnolia, Oct. 12, 1938)**

Cass County and Panola County, Tex.:
Same gravity and price schedule as S. O. Louisiana posts for N. La.-Ark. Crude, which see under that company.

**(Posted by The Texas Co., Oct. 12, 1938)**

Cass County.....$1.05

## WEST TEXAS and NEW MEXICO

(a) (Effective Oct. 11, 1938 to March 24, 1939)

| | Humble | Magnolia Stanolind (b) | Shell | Texas Co. Sinclair (c) |
|---|---|---|---|---|
| Below 20°..... | $0.53 | | $0.53 | |
| 20-20.9..... | .55 | ... | .55 | ... |
| 21-21.9..... | .57 | ... | .57 | ... |
| 22-22.9..... | .59 | ... | .59 | ... |
| 23-23.9..... | .61 | ... | .61 | ... |
| 24-24.9..... | .63 | ... | .63 | ... |
| 25-25.9..... | .65 | ... | .65 | .65 |
| 26-26.9..... | .67 | .67 | .67 | .67 |
| 27-27.9..... | .69 | .69 | .69 | .69 |
| 28-28.9..... | .71 | .71 | .71 | .71 |
| 29-29.9..... | .73 | .73 | .73 | .73 |
| 30-30.9..... | .75 | .75 | .75 | .75 |
| 31-31.9..... | .77 | .77 | .77 | .77 |
| 32-32.9..... | .79 | .79 | .79 | .79 |
| 33-33.9..... | .81 | .81 | .81 | .81 |
| 34-34.9..... | .83 | .83 | .83 | .83 |
| 35-35.9..... | .85 | .85 | .85 | .85 |
| 36-36.9..... | .87 | .87 | .87 | .87 |
| 37-37.9..... | .89 | .89 | for | for |
| 38-38.9..... | .91 | .91 | oil | oil |
| 39-39.9..... | .93 | .93 | 36° & | 36° & |
| 40 & above.... | .95 | .95 | above. | above. |

*Pecos County, West Texas*

(Posted by Humble and Shell, Oct. 11, 1938)

Pecos.....$0.78
Yates Shallow Pool (Shell).....65

(a) Effective by Humble Oil & Refg., Shell Oil, Stanolind Oil & Gas, and Sinclair Prairie, Oct. 11, 1938; by Magnolia Petroleum and The Texas Co., Oct. 12, 1938. On March 24, 1939, Sinclair Prairie revised its posting from 40 & above, to 36 & above, at $0.87.

(b) Magnolia posts $0.63 for below 25; $0.65 for 25-25.9. Stanolind posts $0.65 for below 26.

(c) Texas Co. posts $0.65 for below 26; Sinclair Prairie, $0.63 for below 25.

*Note:* Humble's postings are in these counties: Andrews, Crane, Crockett, Ector, Gaines, Glasscock, Howard, Reagan, Upton, Winkler and Yoakum, West Texas; and Lea county, N. Mex.; Magnolia's are in Crane, Glasscock, Howard, Mitchell, Upton and Winkler; Shell, in Crane, Ector, Glasscock, Howard, Upton, Winkler, Lea; Stanolind in Hendrick field, Winkler county; Texas Co. in Ward, Winkler and Lea; Sinclair in W. Texas and Lea.

***Posted by Sinclair Prairie Oil Marketing Co.***

(Effective Oct. 11, 1938)

Eddy county, N. Mex.....$0.77

***Posted by Continental Oil Co.***

(Effective Oct. 11, 1938)

Artesia, Jackson and Maljamar pools, New Mexico: gravity schedule beginning with below 29, at $0.61; 29-29.9, at $0.63; plus 2c differential for each gravity, up to 40 & above, at $0.85.

## COLORADO

***Posted by Continental Oil Co.***

(Effective Oct. 11, 1938)

Ft. Collins and Wellington

| | | | |
|---|---|---|---|
| Below 29.....$0.81 | | 35-35.9.....$0.95 | |
| 29-29.9..... | .83 | 36-36.9..... | .97 |
| 30-30.9..... | .85 | 37-37.9..... | .99 |
| 31-31.9..... | .87 | 38-38.9..... | 1.01 |
| 32-32.9..... | .89 | 39-39.9..... | 1.03 |
| 33-33.9..... | .91 | 40 & above..... | 1.05 |
| 34-34.9..... | .93 | | |

Canon City and Florence, Col.....$0.90

## SOUTH AND SOUTHWEST TEXAS

***All Shown Below Posted by Humble Oil & Refining Co.***

(Effective Oct. 11, 1938)

Carroll, Clark, Darst Creek, Hilbig, Salt Flat and Zoboroski crudes.....$0.96
Van crude.....$0.93
Conroe.....$1.27

(Effective Dec. 3, 1938)

Flour Bluff.....$1.23

Oct. 12, '38, Magnolia met Humble in Darst Creek; posted $0.87 in Luling; $0.99 in Lytton Springs; $1.14 for Cleveland, and $1.02 in Hardin, both in Liberty county, Tex.

Oct. 12, '38, The Texas Co. met Humble in Darst Creek.

**Anahuac and Dickinson*

(Effective Dec. 3, 1938)

| | | | |
|---|---|---|---|
| Below 20°.....$0.74 | | 30-30.9.....$1.03 | |
| 20-20.9..... | .77 | 31-31.9..... | 1.05 |
| 21-21.9..... | .80 | 32-32.9..... | 1.07 |
| 22-22.9..... | .83 | 33-33.9..... | 1.09 |
| 23-23.9..... | .86 | 34-34.9..... | 1.11 |
| 24-24.9..... | .89 | 35-35.9..... | 1.13 |
| 25-25.9..... | .92 | 36-36.9..... | 1.15 |
| 26-26.9..... | .95 | 37-37.9..... | 1.17 |
| 27-27.9..... | .97 | 38-38.9..... | 1.19 |
| 28-28.9..... | .99 | 39-39.9..... | 1.21 |
| 29-29.9..... | 1.01 | 40 & above..... | 1.23 |

*Includes Cedar Point, Fairbanks, Gillock, Hull, Pierce Junction and Raccoon Bend (shallow sand). *Raccoon Bend (Deep sand crude) Tomball and Satsuma*

(Effective Dec. 3, 1938)

| | | | |
|---|---|---|---|
| 22-22.9.....$0.95 | | 27-27.9.....$1.05 | |
| 23-23.9..... | .97 | 28-28.9..... | 1.07 |
| 24-24.9..... | .99 | 29-29.9..... | 1.09 |
| 25-25.9..... | 1.01 | 30-30.9..... | 1.11 |
| 26-26.9..... | 1.03 | 31-31.9..... | 1.13 |

*(Continued on next page)*

# CRUDE OIL MARKETS

*(Continued from preceding page)*

| | | | |
|---|---|---|---|
| 32-32.9 | $1.15 | 37-37.9 | $1.25 |
| 33-33.9 | 1.17 | 38-38.9 | 1.27 |
| 34-34.9 | 1.19 | 39-39.9 | 1.29 |
| 35-35.9 | 1.21 | 40 & above | 1.31 |
| 36-36.9 | 1.23 | | |

Dec. 3, Magnolia met above price and gravity schedule in Tomball.

***Posted by Humble***

***Mirando***

(Effective Dec. 3, 1938)

| | | | |
|---|---|---|---|
| Below 20° | $0.74 | 30-30.9 | $1.03 |
| 20-20.9 | .77 | 31-31.9 | 1.05 |
| 21-21.9 | .80 | 32-32.9 | 1.07 |
| 22-22.9 | .83 | 33-33.9 | 1.09 |
| 23-23.9 | .86 | 34-34.9 | 1.11 |
| 24-24.9 | .89 | 35-35.9 | 1.13 |
| 25-25.9 | .92 | 36-36.9 | 1.15 |
| 26-26.9 | .95 | 37-37.9 | 1.17 |
| 27-27.9 | .97 | 38-38.9 | 1.19 |
| 28-28.9 | .99 | 39-39.9 | 1.21 |
| 29-29.9 | 1.01 | 40 & above | 1.23 |

*Includes Duval, Jim Hogg, Jim Wells, Webb and Zapata counties, Tex. and Heyser and Placedo crudes.

Oct. 12, '38, Texas Co. posted for Duval-Mirando, $0.77 for below 21, plus 3c differential to 26-26.9, $0.95; 27-27.9, $0.97; 28 & above, $0.99.

Dec. 3, Humble's Mirando schedule met by Magnolia.

**LOUISIANA-ARKANSAS**

***Posted by Standard Oil Co. of Louisiana***

(Effective Oct. 5, 1938)

| | *N. La.-Ark. | †Columbia County, Ark. | ‡South Louisiana |
|---|---|---|---|
| Below 21° | $0.73 | $0.66 | $0.74 |
| 21-21.9 | for | for | .77 |
| 22-22.9 | oil | oil | .80 |
| 23-23.9 | Below | Below | .83 |
| 24-24.9 | 25° | 25° | .86 |
| 25-25.9 | $0.75 | $0.68 | .89 |
| 26-26.9 | .77 | .70 | .92 |
| 27-27.9 | .79 | .72 | .94 |
| 28-28.9 | .81 | .74 | .96 |
| 29-29.9 | .83 | .76 | .98 |
| 30-30.9 | .85 | .78 | 1.00 |
| 31-31.9 | .87 | .80 | 1.02 |
| 32-32.9 | .89 | .82 | 1.04 |
| 33-33.9 | .91 | .84 | 1.06 |
| 34-34.9 | .93 | .86 | 1.08 |
| 35-35.9 | .95 | .88 | 1.10 |
| 36-36.9 | .97 | .90 | 1.12 |
| 37-37.9 | .99 | .92 | 1.14 |
| 38-38.9 | 1.01 | .94 | 1.16 |
| 39-39.9 | 1.03 | .96 | 1.18 |
| 40 & above | 1.05 | .98 | 1.20 |

(Effective Oct. 5, 1938)

Smackover, Ark. $0.73

***Posted by Arkansas Fuel Oil Corp.***

(Effective Jan. 28, 1937)

Urania, La. $1.02

***Posted by Continental Oil Co.***

(Effective Oct. 11, 1938)

Tepetate and Ville Platte, La. $1.03

(Effective Jan. 1, 1939)

**Abbeville, La.**

| | | | |
|---|---|---|---|
| Below 36 | $0.92 | 38-38.9 | $0.98 |
| 36-36.9 | .94 | 39-39.9 | 1.00 |
| 37-37.9 | .96 | 40 & above | 1.02 |

***Posted by Caddo Crude Oil Purchasing Corp.***

(Effective April 19, 1939)

Allison area, Shreveport field $1.05

(Effective April 29, 1939)

**Lisbon, N. La.**

| | | | |
|---|---|---|---|
| Below 34 | $0.73 | 35 & above | $0.77 |
| 34-34.9 | .75 | | |

*Includes Bunkie, Caddo, Carterville, DeSoto, Homer, Haynesville, Rodessa, Sabine and Sarepta, in N. La.; El Dorado and Miller County, Ark. (latter is Ark. part of Rodessa field).

Note: S. O. Louisiana prices in all La.-Ark. fields, effective Oct. 5, 1938, are on 100% tank table basis.

†Includes Buckner, Magnolia, and Village pools.

‡Includes these fields: Baton Rouge, Bayou, Choctaw, Cheneyville, Darrow, Jeanerette, Lirette, N. Crowley and Roanoke.

Oct. 12, 1938, Magnolia Petroleum and The Texas Co. posted same gravity and price schedule as S. O. La. posts in N. La.-Ark. in these fields: Magnolia, in Bull Bayou, Cotton Valley, Haynesville, Pine Island and Rodessa, La., and Eldorado and Rainbow, Ark.; Texas Co. in N. La. Both also met S. O. La in Smackover. Texas Co. posted $1.24 for Garden Island, La. and $1.04 for Lafitte, La.

***GULF COASTAL FIELDS**

***Posted by Humble Oil & Refining Co.***

†(Effective Oct. 11, 1938)

| | | | |
|---|---|---|---|
| Below 20 | $0.79 | 30-30.9 | $1.08 |
| 20-20.9 | .82 | 31-31.9 | 1.10 |
| 21-21.9 | .85 | 32-32.9 | 1.12 |
| 22-22.9 | .88 | 33-33.9 | 1.14 |
| 23-23.9 | .91 | 34-34.9 | 1.16 |
| 24-24.9 | .94 | 35-35.9 | 1.18 |
| 25-25.9 | .97 | 36-36.9 | 1.20 |
| 26-26.9 | 1.00 | 37-37.9 | 1.22 |
| 27-27.9 | 1.02 | 38-38.9 | 1.24 |
| 28-28.9 | 1.04 | 39-39.9 | 1.26 |
| 29-29.9 | 1.06 | 40 & above | 1.28 |

*Polk County, Tex.*
***(Posted by Shell Oil Co., Inc.)***

Livingston Area (Effective Oct. 11, '38) $1.10
Schwab Area (Effective Feb. 20, '39) 1.00

†Effective Dec. 3, 1938, gravities up to 45 & above discontinued in Refugio, Saxet, Greta, O'Connor-McFadden, Taft, Plymouth and Tom O'Connor fields.

*Humble's prices apply in these Texas fields: Amelia, Clear Lake, Goose Creek, Mykawa, Sugarland, Thompsons, Webster and West Columbia; also Refugio, Saxet, Greta, O'Connor-McFadden, Taft, Plymouth and Tom O'Connor fields.

Oct. 11, 1938, Stanolind posted in Clinton, Hastings, High Island, So. Houston, and Spindletop same prices as Humble in Texas Gulf Coast fields, except that Stanolind's lowest grade is below 21, at $0.82.

Oct. 12, 1938, The Texas Co. posted for Texas & La. Gulf Coast crude: $0.82 for below 21 plus 3c to 26-26.9, which is $1; from there on, 2c, to 34 & above, which is $1.16. In Refugio, same as other Gulf Coast, except highest gravity is 28 & above, $1.04.

Effective Oct. 11, 1938, Sinclair Prairie met Humble's Gulf Coast price & gravity schedule.

**ROCKY MOUNTAIN FIELDS**

***Posted by Stanolind Oil & Gas Co.***

(Effective Oct. 11, 1938)

Salt Creek, (except Tensleep crude), Midway and Dutton Creek, Wyo., same schedule as Stanolind posts in Oklahoma-Kansas, ranging from $0.86 to $1.10, which see under Mid-Continent crude on previous page.

| | |
|---|---|
| Tensleep, Salt Creek field | $0.646 |
| Iles, heavy | 0.92 |
| Elk Basin, light | 0.90 |
| Grass Creek, light | 0.90 |
| Frannie light | 0.55 |
| Grass Creek, heavy | 0.40 |
| Hamilton Dome, Wyo. | 0.35 |
| Frannie heavy | 0.42 |

***Posted by Ohio Oil Co.***

(Effective Oct. 11, 1938)

| | |
|---|---|
| Elk Basin, Wyo. | $0.90 |
| Grass Creek, light | 0.90 |
| Rock Creek | 1.00 |
| Lance Creek | 0.77 |
| Dry Creek, Mont. | 0.92 |

(Effective May 1, 1938)

Grass Creek, heavy $0.50

(Effective Nov. 16, 1937)

Sunburst, Mont. $0.90

***Posted by Continental Oil Co.***

(Effective Oct. 11, 1938)

| | |
|---|---|
| Cat Creek, Mont. | $1.10 |
| Big Muddy, Wyo. | 0.98 |
| Lance Creek, Wyo. | 0.77 |

## CALIFORNIA, *Posted by Standard Oil of California*

*All gravities above those quoted take highest price offered in the field. Prices effective Feb. 26, 1936, except Huntington Beach, Playa del Rey, Santa Fe Springs, Kern Front, Signal Hill (Long Beach) effective March 7, 1936; Elk Hills effective June 22, 1936; Lakeview Area, Aug. 19, 1936; El Segundo and Wilmington, Oct. 15, 1937; Greeley-Canal, July 9, 1938; Santa Maria Valley, by Union Oil, Oct. 15, 1938.*

| Gravity | Signal Hill (Long Beach) El Segundo †Wilmington | Seal Beach | Alamitos Heights | Huntington Beach | Inglewood | Playa del Rey | Olinda Brea Canon | Athens Rosecrans | Dominguez | Torrance | Richfield | Whittier East Coyote (La Habra) | Montebello | West Coyote Hills | Santa Fe Springs | ‡Newhall and others | Mountain View | Elk Hills | Buena Vista Hills Midway-Sunset Lakeview Area | Greeley-Canal (Kern County) | Lost Hills | Coalinga | Wheeler Ridge | Santa Maria (Union Oil) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13-13.9 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | $0.63 |
| 14-14.9 | $0.80 | $0.79 | $0.74 | $0.78 | $0.79 | $0.80 | $0.76 | .... | .... | $0.80 | $0.76 | $0.76 | $0.77 | $0.78 | .... | $0.70 | .... | $0.70 | $0.70 | .... | $0.70 | $0.70 | .... | .65 |
| 15-15.9 | .80 | .79 | .74 | .78 | .79 | .80 | .76 | .... | .... | .80 | .76 | .76 | .77 | .78 | .... | .70 | .... | .70 | .70 | .... | .70 | .70 | .... | .68 |
| 16-16.9 | .80 | .79 | .74 | .78 | .79 | .80 | .76 | .... | .... | .80 | .76 | .76 | .77 | .78 | .... | .70 | .... | .70 | .70 | .... | .70 | .70 | .... | .70 |
| 17-17.9 | .80 | .79 | .74 | .78 | .81 | .80 | .76 | .... | .... | .80 | .76 | .76 | .77 | .78 | .... | .70 | .... | .70 | .70 | .... | .70 | .70 | .... | .70 |
| 18-18.9 | .80 | .79 | .74 | .78 | .84 | .80 | .78 | .... | .... | .82 | .76 | .76 | .77 | .78 | .... | .70 | .... | .70 | .70 | .... | .70 | .70 | .... | .... |
| 19-19.9 | .82 | .79 | .74 | .82 | .87 | .84 | .81 | .... | .... | .85 | .76 | .78 | .77 | .78 | .... | .70 | .70 | .74 | .74 | .... | .74 | .71 | .70 | .... |
| 20-20.9 | .85 | .79 | .74 | .85 | .90 | .88 | .84 | .... | .... | .88 | .78 | .82 | .77 | .80 | .... | .... | .70 | .78 | .78 | .... | .78 | .72 | .70 | .... |
| 21-21.9 | .88 | .79 | .74 | .89 | .93 | .93 | .88 | .... | .... | .91 | .80 | .85 | .77 | .84 | .78 | .... | .73 | .82 | .82 | .... | .82 | .74 | .70 | .... |
| 22-22.9 | .92 | .82 | .74 | .92 | .96 | .98 | .92 | .... | .... | .93 | .84 | .89 | .79 | .88 | .78 | .... | .77 | .87 | .87 | .... | .86 | .78 | .72 | .... |
| 23-23.9 | .95 | .86 | .77 | .96 | .99 | 1.02 | .96 | .84 | .79 | .96 | .88 | .93 | .82 | .92 | .78 | .... | .80 | .92 | .92 | .... | .90 | .82 | .76 | .... |
| 24-24.9 | .99 | .91 | .80 | 1.00 | 1.02 | 1.06 | .99 | .88 | .81 | .99 | .91 | .96 | .85 | .96 | .82 | .... | .84 | .97 | .97 | .... | .94 | .86 | .79 | .... |
| 25-25.9 | 1.03 | .95 | .82 | 1.03 | 1.05 | 1.11 | 1.03 | .93 | .83 | 1.02 | .95 | .... | .89 | .99 | .86 | .... | .88 | 1.01 | 1.01 | .... | .98 | .90 | .83 | .... |
| 26-26.9 | 1.06 | 1.00 | .85 | 1.07 | 1.09 | 1.16 | 1.06 | .98 | .86 | 1.05 | .98 | .... | .92 | 1.03 | .90 | .... | .91 | 1.06 | 1.06 | .... | 1.02 | .... | .... | .... |
| 27-27.9 | 1.10 | 1.05 | .88 | 1.11 | 1.12 | .... | 1.10 | 1.03 | .88 | .... | 1.02 | .... | .96 | 1.06 | .95 | .... | .95 | 1.10 | 1.10 | $0.91 | 1.06 | .... | .... | .... |
| 28-28.9 | 1.14 | 1.10 | .90 | 1.14 | 1.15 | .... | 1.14 | 1.07 | .90 | .... | 1.06 | .... | .99 | 1.10 | .99 | .... | .99 | 1.15 | 1.15 | .94 | 1.10 | .... | .... | .... |
| 29-29.9 | 1.17 | 1.15 | .93 | 1.18 | 1.18 | .... | 1.17 | 1.12 | .93 | .... | 1.09 | .... | 1.03 | 1.14 | 1.03 | .... | 1.02 | 1.20 | 1.20 | .98 | 1.14 | .... | .... | .... |
| 30-30.9 | 1.21 | 1.19 | .95 | 1.22 | 1.21 | | 1.21 | 1.17 | .95 | .... | .... | .... | 1.07 | 1.17 | 1.08 | .... | 1.06 | 1.25 | 1.25 | 1.02 | 1.18 | .... | .... | .... |
| 31-31.9 | | | | | 1.24 | | 1.24 | 1.22 | .97 | .... | .... | .... | 1.11 | 1.21 | 1.12 | .... | 1.09 | 1.29 | 1.29 | 1.06 | | | | .... |
| 32-32.9 | | *Ellwood Terrace | | .... | 1.27 | | 1.27 | 1.27 | 1.00 | .... | .... | .... | 1.14 | 1.25 | 1.16 | .... | 1.13 | 1.34 | 1.34 | 1.09 | Kettleman Hills | | | .... |
| 33-33.9 | .... | 1.28 | .... | .... | .... | | .... | 1.32 | .... | .... | .... | .... | 1.18 | 1.28 | 1.20 | .... | 1.17 | 1.38 | 1.38 | 1.13 | .... | 1.19 | .... | .... |
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| 39-39.9 | .... | .... | .... | .... | .... | | .... | 1.61 | .... | .... | .... | .... | 1.40 | .... | .... | .... | .... | .... | .... | 1.35 | .... | 1.43 | .... | .... |
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F. O. B. Standard Pipe Line

*F. o. b. ship.

‡Also McKittrick, Kern River. Kern Front and Round Mountain $0.70 thru 19.9 gravity; no higher gravity quoted.

†Wilmington prices differ on gravities below 18.9. Prices are: 14-16.9, $0.75; 17-17.9, $0.77; and 18-18.9, $0.79; rest of schedule same as Signal Hill.

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### New Synthetic Rubber Process

WASHINGTON—According to a report received by the Department of Commerce, a new electric-arc process for manufacturing synthetic rubber has recently been developed in Germany.

The new process, it is said, permits the manufacture of synthetic rubber by the conversion of acetylene from waste hydrocarbons produced by synthetic gasoline plants. Need for carbide as a basic raw material is eliminated, by the new process.

Germany's second largest commercial plant for producing synthetic rubber, now building in Westphalia, will use the new process. It is also reported that newly developed technical improvements which will appreciably curtail electric power consumption in rubber production, will reduce a primary cause for relatively high cost of the synthetic product and will, in time, make it competitive with natural rubber, it is claimed.

Bulk of Germany's synthetic rubber is used in tire manufacture, with most of the tires incorporating the synthetic product, until now, containing about 30 per cent natural rubber. It is expected the ratio of synthetic rubber in tire fabrication will be steadily expanded, according to the report.

### 700,000 Miles With Same Bearing

A record of over 700,000 miles in the same automobile with the original bearings and gears, speaks well for the advancements made by the automotive industry in the manufacture of parts and for the oil industry in providing lubrication for the car of today.

The record which is thought to be a new peak was hung up by R. J. Morris, Mt. Gambier, South Australia in a 1929 Packard, which was purchased new.

Mr. Morris reported that some mechanical work was done on the motor at 200,000 mile intervals but practically all parts are those originally installed in the engine.

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# "STRICTLY PERSONAL"

**J. F. Pierce,** division manager for American Oil Co. at Roanoke, Va., former Captain in the British Indian Army, was in Washington last week to take part in the military review held at the British Embassy for the Empire's ex-service men during the visit here of King George VI and Queen Elizabeth. Mr. Pierce served with Hodson's Horse, a Sikh Regiment, from 1917 to 1923, seeing action in France, Palestine, Mesopotamia, India and Egypt. He was decorated several times. Mr. Pierce was one of the ex-British officers to whom the King stopped to speak for several minutes during the review.

* * *

**J. S. Worden** has been appointed vice-president and general sales manager of the Indian Refg. Co., Lawrenceville, Ill. to succeed **P. C. Scullin** who retired June 1. Mr. Worden has been superintendent of the Lawrenceville refinery since 1937, having been transferred from the Houston plant in 1931 when the Indian Refining Co. became affiliated with the Texas Co. From 1934 to 1937 Mr. Worden was located at the Port Arthur plant. **W. B. Logan** has been appointed superintendent to succeed Mr. Worden.

* * *

**Judge J. C. Hunter,** president of the Mid-Continent Oil and Gas Ass'n., and Mrs. Hunter, have returned to Washington from their home at Abilene, Tex., and expect to spend the next several weeks in the Capital.

* * *

**I. E. Goodman,** former treasurer and general manager of the Keystone Oil Rfg. Co., Detroit has formed a partnership with **John Clevenger,** a pioneer pipeline contractor of Michigan, under the name of Clevenger & Goodman. The general office of the company will be at Detroit.

* * *

**John Nelson,** secretary of Canfield Oil Co., and Mrs. Nelson and their two children, left Cleveland, O., June 8 on a trip to the West Coast. They will visit Yellowstone National Park, Grand Canyon and the San Francisco World's Fair, returning in July. Mr. Nelson, who is head of Canfield's jobbing department, will also make some business calls enroute.

* * *

**Everett Bretz,** comptroller's department of Phillips Petroleum Co. at Bartlesville, took the O. K. Wing golf trophy for 1939 from **George Hanks** at the recent handicap tournament at Hillcrest Country Club for company employes. With a handicap of 30 strokes, Bretz had a net score of 142 for 36 holes.

* * *

**E. R. Lederer,** president of Bradford Oil Refining Co., has returned to his office following a 10-day stay at Cleveland Clinic Hospital for a "general check-up".

* * *

**Homer F. Wilhelm,** who has represented Socony-Vacuum Oil Co., Inc., in the National Lubricating Grease Institute since its organization in 1933, resigned because of a promotion to the manufacturing department of his company, according to word from **George W. Miller,** executive secretary of the Institute. Mr. Wilhelm has been succeeded in the grease institute by B. C. Voshell, of the same company. In 1937, Mr. Wilhelm was president of the institute, and was formerly assistant manager of the wholesale lubricating oil and grease department of his company.

* * *

The operators in the Howard-Glasscock pool in west Texas have organized an oil and gas association and elected **B. L. LeFevre** of the American Maricaibo Co. as president. **R. M. Brown,** Superior Oil Co., has been named vice president, and **Robert N. Wagener,** Forsan Supply House proprietor, secretary.

* * *

Three of the four Fort Worth oil men who have been on Kodiak Island, Alaska, hunting for several weeks have returned home with their game. They were **George Calvert, George Fagg,** and **Bert F. Weekley.** The fourth man was **Jack M. Loffland,** who remained in San Francisco for a visit. The quartet killed eight Kodiak bears and two wolverines. They also had a good fish story—that they caught rainbow trout averaging around 18 pounds in weight and 35 inches in length PER FISH!

* * *

**Louis A. Williford,** Macmillan Petroleum Corp., is the new president of the Petroleum Accountants Society of Los Angeles, succeeding **D. S. Kilgour,** California Oil and Gas Ass'n., president for the past year. **William A. Russell,** Seaboard Oil Co., and **Dwight A. Moore,** Wilshire Oil Co., are the new vice-presidents; and **Irving J. Hancock,** Union Oil Co., is secretary treasurer. Mr. Hancock and **Stanley K. Slack,** General Petroleum Corp., were re-elected as directors, and **Stanley J. Anderson,** Ring Oil Co., was elected to the board.

* * *

**Charles H. Brumbaugh** of Dallas has organized the Brumbaugh Oil Co., to serve as North Texas distributor for the Kendall Refining Co.'s products. He will distribute the products in 42 counties.

* * *

**J. E. Vilm** has joined the sales department of the Globe Oil & Refining Co., with headquarters at Wichita, Kans.

* * *

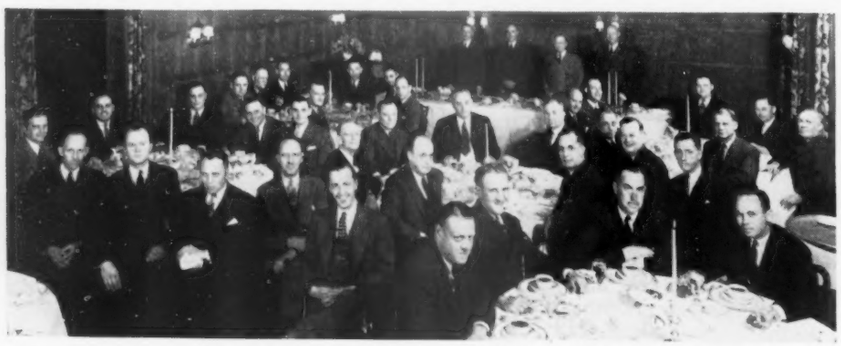
**O. L. Polson,** purchasing agent for Gulf Oil Corp., in Tulsa office, has been transferred to the general purchasing offices of the corporation at Pittsburgh, Pa. The change was effective June 1.

* * *

Vice President **J. A. LaFortune** of Warren Petroleum Co., has returned to Tulsa from South Bend, Ind., where he attended the Rockne memorial dedication at Notre Dame university on June 3. While in South Bend he helped his parents, Mr. and Mrs. Louis LaFortune, celebrate their 51st wedding anniversary.

* * *

**John Canning Jr.,** Chicago, in Standard Oil Co. (Indiana) public relations department, had his photographic ability recognized this week, by winning a third place award in the current Marshall Field photographic salon. The photo, taken last winter from the Standard Oil building here, was a shot of the snow-bound Michigan Avenue which was widely published in newspapers throughout the country.



Gasoline Pump Manufacturers Ass'n. holds banquet at Cleveland Hotel in connection with its annual meeting May 23-24 at Cleveland, O. At speakers table standing, left to right, are "Senator" Ford, professional humorist; G. Denny Moore, managing director of the association; E. C. "Si" Marsh, sales manager of F. S. Bowser, Ft. Wayne, Ind.; and C. M. Niezer, president, Tokheim Oil Tank & Pump Co., Fort Wayne, Ind.

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**When ordering smooth-bore pump hose, don't order "synthetics"—Specify Neoprene**

## Russell B. Brown

If the Federal Trade Commission issues an oil marketing code in the next few weeks—as is expected, if the Securities and Exchange Commission decides to require integrated oil companies to disclose their profits or losses in marketing and each other branch separately, then credit will be due to Russell B. Brown.

Despite his efforts in behalf of these objectives, Mr. Brown is not the representative of oil marketers—he is general counsel of the Independent Petroleum Ass'n. of America, an organization primarily of oil producers.

A native of Kentucky, Mr. Brown was only seven years old when his parents moved to Ardmore, Oklahoma, where he later distinguished himself as city attorney.

As general counsel of the I.P.A.A. at Washington, Mr. Brown was the spearhead of American producers' fight to shut off imports of foreign oil, culminating in enactment in 1932 of an oil import tax.

Mr. Brown was instrumental in Interior Secretary Ickes calling the 1933 oil conference from which came recommendations later incorporated in legislation and the NRA oil code.

Climaxing an active part in drafting the oil code, Mr. Brown became secretary of the Planning and Co-ordination Committee, national oil code authority, and later was compliance director.

After the NRA, he resumed his position with the I.P.A.A. Lately, he has been working to fulfill the association's platform which includes persuading the FTC to reconsider its rejection of the oil marketing code and to have the SEC require a breakdown of 'P. & L.' statements from the integrated companies.

But the I.P.A.A.'s vigilance has not been relaxed on any other front at Washington. Mr. Brown or some representative of the association is present at every hearing remotely touching the independent producers' interests.

Mr. Brown is a grandfather of some years standing—longer than his picture would indicate.